STATEWIDE
RIVER & STREAM MANAGEMENT PTY. LTD

MORDIALLOC FREEWAY PROJECT

Independent Reviewer and Environmental Auditor

Quarterly Construction Audit

Report 2, June 2020

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PROJECT
Mordialloc Freeway Project

Quarterly Construction Audit, June 2020

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EXECUTIVE SUMMARY

Introduction

This report summarises the audit findings of the Independent Reviewer and Environmental Auditor (IREA) for the Mordialloc Freeway Project (the Project) in Melbourne, Victoria. It covers the findings of the first audit and inspection carried out on the 25th and 26th June 2020 and will be provided to the Major Transport Infrastructure Authority (MTIA) and Victorian Minister for Planning, and made available to the public on the Major Road Projects Victoria (MRPV) website.

The IREA has been appointed by McConnell Dowell Decmil Joint Venture (MCDDJV), the design and construction contractor, to provide independent oversight of the environmental performance of the Project. The IREA undertakes audits of the Project activities to assess whether conformance with Project requirements and approvals are being achieved. This includes the Environmental Management Framework (EMF), Environmental Performances Requirements (EPRs), Environmental Management Plans, site Environmental Control Plans (ECPs) and engineering designs developed by MCDDJV.

Construction on the Project has been underway since October 2019. Activities have consisted of installation of sediment controls (primarily silt fences and swales), clearing vegetation and topsoil, cutting of drains and sedimentation basins and receipt and placement of subgrade material. This audit has focused on these activities only.

Scope and Conduct of This Audit

This report details the results of environment audit and site inspection carried out on the 25th and 26th June 2020.

The audit reviewed MCDDJV's actions to address the previous audit findings. The audit also reviewed the implementation of the following documents as they applied to the works at the time of the audit:

- Flora and Fauna EMP - 12304_EHP_FF Sub-plan_06052019
- Flood Management controls

The audit also includes an assessment of how the requirements of the above plans had been incorporated into the site specific Environmental Control Plans (ECPs).

Monitoring data collected to date was also reviewed to assess the adequacy of monitoring, the quality of discharges and emissions and their likely impacts.

A site inspection was also carried out in order to:

- Determine if the controls specified in the above plans and ECPs have been implemented, as they applied to the works to date.
- Identify any unsuitable work practices.
- Visually confirm monitoring and sampling locations.

The IREA is required to provide quarterly audit reports to MTIA and the Minister for Planning and must be made available to the public. The audit and site inspection detailed in this report forms part of the IREA's reporting requirements.

Environmental Controls

Flora and Fauna EMP:

The project has followed the requirements of the fauna and flora management plan. The services of arborists and ecologists were retained prior to construction commencing in order to review the site and identify areas of vegetation that required retention and to relocate fauna from the construction site. The same services have been used as the project has progressed to assess impacts on vegetation, relocate animals during stripping operations and provide advice. Surveys of wildlife in the Wetlands area have also been implemented and are continuing.

An inspection of the site found No-Go- Zone fences were in place and, where possible, MCDDJV had retained vegetation above what was formally required. This has results in a significant area of trees being retained, which will improve the visual amenity and provide additional habitat for local fauna. The inspection also found ample birdlife around the Wetlands construction zone. The significant number of water foul and the swans present did not appear to be disturbed by the construction activities which were occurring at the time, with a number perched on the silt curtains and small islands bordering the construction area.

Some issues have been noted, such as the removal of vegetation from a section of drain without an ecologist being present and reportedly, incursions into vegetation No-Go-Zone noted by MRPV and removal of vegetation in No-Go-Zones without MRPV's prior approval. In each instance, the environmental impacts were not significant and MCDDJV took action to rectify the issue and to ensure it did not reoccur. The additional retention of vegetation on the project site by MCCDJV more than off-sets the vegetation removed from No-Go-Zones.

Flood Management:

A flood modelling report was carried out prior to construction commencing in 2019 (Jacobs). The report also included the design of drains to collect this water during severe storm events and prevent flooding. Settling ponds to store and treat the expected quantity of stormwater were also included in the final design. The design of the ponds was reviewed by a suitably qualified engineer and a Declaration issued stating they were suitably sized.

The drains and ponds have been installed on the site as per the design, which should be sufficient to collect, store and treat stormwater falling on the site during severe storm events and prevent flooding.

Complaints Management:

Complaints can be generated by members of the public, motorists, community groups, regulators and businesses. They can be received via emails, phone calls, SMS, walk-ins, or letters.

These can be made directly to MCDDJV or to a contact centre that collates enquires and complaints for all MRPV projects and passes them on to the relevant project for response. These can be passed to either MRPV or MCDDJV depending on the nature of the enquiry. Records of complaints are compiled and reported weekly to MRPV.

The complaint recording and response process appears to be operating as it should and the responses appear appropriate. Over the 15 week period reviewed (14/3/20 – 28/6/20) there were 53 complaint events (3 to 4 per week). Almost 90% of these events were related to dust, noise and vibration. The largest number of complaints occurred on the 8th of May, when seven complaints were received due to construction activities that extended into the evening period (i.e. after 7pm). This was due to delays in the delivery of fill material onto the site. This triggered a formal investigation and a series of corrective actions. One of the outcomes of the investigation was to ensure deliveries of fill material were not scheduled after 6 pm, to allow for any future delays. The event also reinforced the need to carry out noisy activities, or activities very close to residents, during day time hours only whenever possible.

Incidents and Non-conformances:

MCDDJV recorded 4 incidents since the previous audit. Three involved diesel spills from punctured vehicle fuel tanks and one was due to a hydraulic oil spill from a failed hydraulic hose. In all cases, the spills were relatively small and the contaminated soil collected and then disposed of as contaminated waste by an EPA licensed disposal contractor. The fuel tank spills were found to be due to contract transport drivers taking unauthorised off-road “short-cuts”. Drivers were informed they would need to pay for future clean-up costs for any spill due to this practice. This appears to have resolved the issue.

MRPV provided the IREA with a number of issues related to incursions into vegetation No-Go-Zones that MRPV reportedly identified. A number have been disputed by MCDDJV and they have not been entered into the MCDDJV incident reporting system. This discrepancy needs to be resolved so a consolidated and agreed to set of issues is held by both organisations and they can be resolved.

Site Specific Environmental Control Plans

The site specific Environmental Control Plans (ECPs) provide detail of where control structures such as sediment fences, spill control kits and concrete wash down areas will be located. The audit did not identify any issues with the infrastructure that was required by the ECPs.

Monitoring

Dust:

The dust directional gauges indicate the dust coming from the site at some locations is slightly higher than dust levels from other directions. However, the dust deposition levels have all been below the 4g/m^2/month limit.

The results from the real time dust monitors are all well below the 10 micron 24 hour average legislative health limit (3.7 to 15.4 µg/m^3 measured cf. the limit of 50 µg/m^3) and also well below the 10 micron 1 hour average target and the 2.5 micron 1 hr average and 24 hour average targets.

There have been several issues with the real time monitors:

- The supplier informed MCDDJV that the pumps on the units were undersized, which resulted in low readings during high wind conditions. Temporary units were provided for approximately two months (February - March) while the MCDDJV units were upgraded. Therefore, the earlier readings were likely lower than they should have been during high wind conditions.
- There have been gaps in the data from one unit to the north of the project site. The supplier has identified it as an issue with the power supply (solar panels). MCDDJV suspected the solar panel, which was located close to the ground, was being partially covered by grass, therefore the panel was raised off the ground. The second unit was relocated from the Australian Sheet Metal site to the neighbouring MCDDJV compound and connected to the site generator to ensure adequate power was available. The unit to the north is still losing data, therefore, the supplier, Air-Met Scientific, has been asked to review the operation and maintenance of the unit so it can provide continuous data. This audit has also recommended a temporary replacement unit and power supply be provided by the supplier if the issue cannot be resolved in the short term.

Water:

Water monitoring has been occurring. The treated water discharged from the site has complied with the 30 NTU limit and should not adversely impact on the receiving waters.

There were several instances where there may have been some run-off from the site, however, the extent of the impact could not be determined due to changes in the site drainage. Some monitoring locations within internal drains no longer discharge from the site, while other monitoring locations in external drains are no longer relevant, as the on-site drains have been blocked off and no longer discharge off-site. Other locations were found to be overgrown with weeds, boggy and have little flow, which makes the results difficult to interpret (i.e. is the measured turbidity due to the project site discharges or the surrounding mud at the sample location).

The audit has recommended that all water monitoring locations be reviewed in light of the current drainage configuration, and new monitoring locations identified, which allow the water quality both upstream and downstream of the various works areas to be

determined. This will allow a clearer assessment of the impact on the aquatic environment due to the site works.

Noise & Vibration:

Noise monitoring has been carried out for works occurring during out of hours periods (i.e. 7 pm to 7 am) and during high noise activities close to residential areas. The results identified high noise levels which exceeded the noise targets set by the project. However, on closer examination, it was found a number of the results were due to the noise monitoring occurring immediately next to the work area, rather than monitoring at the closest residential location. It was also found that the noise target for each area was based on background noise levels measured away from major roadways. Therefore, when monitoring was carried out at worksites close to major roadways, the local traffic noise alone could exceed the noise target.

Based on the above findings, it was recommended that a procedure be developed detailing the noise monitoring parameters, including the need to monitor the noise levels at the residential location closest to the construction activity. It was also recommended that all available pre-construction background noise levels (including those close to major roadways) be used to develop noise contour target levels along the alignment, rather than a single noise target for each area.

Soil and Groundwater:

MCDDJV is required to monitor the depth to the underlying aquifer in a number of the site groundwater monitoring bores. This monitoring has been occurring as required. Additionally, samples of groundwater were collected on the 15/6/2020, as required by a previous audit recommendation, and sent for analysis. The results were not available at the time of the audit, but will be reviewed at the following audit. Future audits will also be reviewing the management of Potential Acid Sulphate Soil which has recently been encountered in the Waterways area.

Site Inspection Findings

The site inspection found that all previous audit recommendations identified during the site inspection had been implemented and that there had been a significant improvement in the level of housekeeping on the project site. The inspection also noted successful efforts in minimising impacts on local fauna and flora.

There were two issues noted for further investigation. This consisted of:

- a pallet of 20 litre drums of a flammable material stored by a contractor in an open area and not in compliance with Dangerous Goods storage requirements; and
- an area of works south of Centre Dandenong Road, where additional sediment fencing may be required and a small blocked off on-site drain requires monitoring and potentially requires an increase of its holding capacity to avoid any overflow of untreated water.

Audit Findings

Of the 22 audit recommendations from the previous audit report, 21 have been suitably addressed and are considered closed. Actions to address the final recommendation were progressing and should be completed shortly after this audit.

This audit produced a further 18 new recommendations. Actions to address the new recommendations, along with the single open recommendation from the March audit, will be reviewed at the next quarterly audit.

1 INTRODUCTION

1.1 Purpose of this Report

Independently assess compliance with Project requirements and approvals.

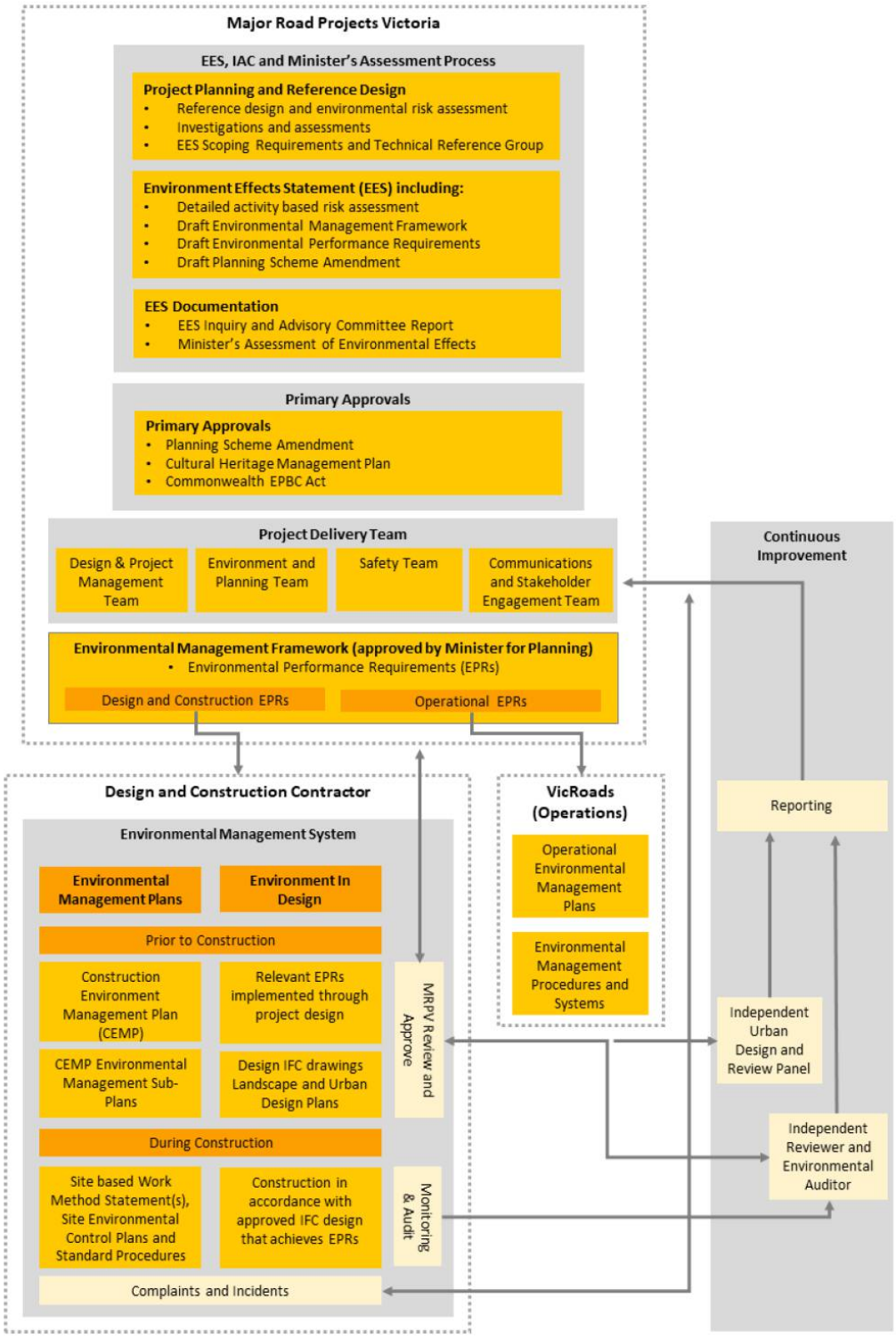
1.2 Project Background

The Mordialloc Freeway will link the Mornington Peninsula Freeway to the Dingley Bypass and will:

- build bridges over Springvale, Governor, Lower Dandenong and Centre Dandenong Roads, including new freeway entry and exit ramps
- build bridges over Old Dandenong Road and the sensitive waterways area
- connect the freeway to Dingley Bypass with traffic lights
- upgrade the existing interchange at Thames Promenade, Chelsea, with the Mornington Peninsula Freeway to provide freeway entry and exit ramps
- build a new shared walking and cycling path along the entire freeway.

Construction commenced in October 2019 and is due to be completed by the end of 2021.

1.3 Project Approvals



The Project was assessed via a joint State and Commonwealth Environmental Effects Statement (EES) process. State approval was granted via a Planning Scheme Amendment (PSA) and associated conditions. A condition of the PSA required MRPV to prepare an Environmental Management Framework (EMF), inclusive of the Environmental Performance Requirements (EPRs) to the satisfaction of the Minister for Planning. The EMF and EPRs has been approved by the Minister for Planning and published on the MRPV

website. The relationship between MRPV and MCDDJV from approvals through to delivery is outlined below.

MRPV also secured primary approvals under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and Aboriginal Heritage Act 2006. The obligation to comply with the EMF and design and construction EPRs, EPBC conditions and Cultural Heritage Management Plan (CHMP) conditions has been transferred to MCDDJV through a legally binding contract. MCDDJV is responsible for obtaining and complying with a range of secondary approvals and consents, as indicated below:

Summary of main statutory approvals and consents

Act	Requirements	Responsibility	Implementation
Primary Approvals			
EPBC Act	EPBC referral, assessment and approval	MRPV	MRPV will ensure that approval conditions are met by MCDDJV through contract conditions.
Planning and Environment Act 1987	Planning scheme amendment to permit use and development	MRPV	MRPV will ensure that approval conditions are met by MCDDJV through contract conditions.
Aboriginal Heritage Act 2006	CHMP	MRPV	MRPV will ensure approval conditions are met by MCDDJV through contract conditions.
Secondary Approvals and Consents			
Environment Protection Act 1970	Environmental Improvement Plan	MCDDJV	The MCDDJV will obtain and comply with EP Act permits.
Flora and Fauna Guarantee Act 1988 (FFG Act)	Permit for the removal of listed flora from public land	MCDDJV	The MCDDJV will obtain and comply with FFG Act permits.
Heritage Act 2017	Permit and/or consent to disturb	MCDDJV	The MCDDJV will obtain and comply with all heritage permits and/or consents.
Road Management Act 2004	Consent for traffic management works on roads	MCDDJV	The MCDDJV will obtain and comply with all requisite Road Management Act consents.

Act	Requirements	Responsibility	Implementation
Water Act 1989	Approvals for works to be undertaken in relation to groundwater and waterways	MCDDJV	The MCDDJV obtain and comply with all permits and licenses under the Water Act.
Wildlife Act 1975	Permit to remove, salvage capture or relocate fauna	MCDDJV	The MCDDJV will obtain and comply with any permit that may be required.

1.4 Role of the IREA

The requirement and role for the IREA is outlined in final ERP EM3, as follows:

> "*Appoint a suitably qualified Independent Reviewer and Environmental Auditor (IREA) to review and certify the CEMP and other management plans as required by the EPRs, in accordance with the Environmental Management Framework. The IREA must be an accredited Environmental Auditor. During construction audit reports must be provided to MTIA and the Minister for Planning on a regular basis as appropriate. Audit reports are to be made available to the public.*"

The scope, role and responsibility of the IREA is further defined in the approved EMF as follows:

a) *"Review the D&C Contractor's Environment Management Strategy, CEMP and other management plans as required by the EMF*
b) *Review and certify the D&C Contractors have implemented the relevant EPRs through project design in their drawings*
c) *Monitor and audit the D&C Contractors compliance with the Environment Management Strategy, CEMP and other environmental management sub- plans as required by the EPRs*
d) *Conduct audits of the D&C Contractors work to assess construction compliance with the approved IFC (issued for construction) design*
e) *Assess compliance with project approvals, legislation, regulations, policies, guidelines, codes of practice and applicable industry standards.*
f) *Review complaints which may highlight instances of non-conformance with applicable EPR*
g) *Prepare audit reports and provide to MRPV quarterly."*

1.4.1 Report Scope

As indicated above the IREA is responsible for reviewing the Construction Environment Management Plan (CEMP) and subplans (EMPs) and ECPs. The audit and inspection which is the subject of this report also included an assessment of compliance with the EPRs linked

to these CEMP and subplans. Any identified issues require the Plan/s in question to be updated by MCDDJV and resubmitted to the IREA for final approval.

The IREA is also required to review and certify the MCDDJV have implemented the relevant EPRs through project design in their drawings (e.g. noise wall, fauna underpasses or lighting design) and conduct audits of work to assess construction compliance with the approved IFC (issued for construction) design drawings (items b and d above). In addition, the IREA is required to review a number of other plans that do not relate to traditional CEMP matters, but are a requirement of the EPRs, such as the Business Disruption Plan, Traffic and the Lighting (operation) Plans. These engineering design EPRs and non-CEMP related ERP matters are the subject of a separate IREA report.

This scope of this report and subsequent quarterly reports relates to items c, e, f and g above (Section 1.4) and forms part of the IREA's reporting requirements.

1.4.2 Site Audits and Inspections

The IREA is required to independently assess whether the Plans and ECPs developed by MCDDJV are being implemented and that the implementation of these various plans meet the requirements of the relevant EPRs and other approval conditions. The IREA is also required to inspect the physical works and confirm the controls detailed in the Plans, subplans and ECPs are in place and they are effective in controlling the impact of the works on the surrounding environment and community.

1.4.3 Reporting

The IREA is responsible for preparing an audit report which MCDDJV must forward to Major Transport Infrastructure Projects (MTIA) and Minister for Planning during construction. This audit report, along with the report described in 1.3.1 above (Plans which are not part of the CEMP) will be provide to MITA and the Minister and is the first of the quarterly reports. Reports will be published on the MRPV project website. The audits described in this section have been undertaken by the lead IREA Environment Auditor, Ken Fraser and Assistant Environment Auditor, Vic Natoli.

1.5 Report Structure

This report is divided into the following sections:

- Section 1: The role of the IREA – details the IREA's primary responsibilities and the IREA's report to the Minister
- Section 2: Conduct of Audits – details the scope of the IREA's audit activities undertaken prior to, during and after the audit.
- Sections 3 to 7: Audit Findings and Conclusion – provides the IREA's findings from the audit and conclusions on the MCDDJV's conformance with the requirements of the EMPs, relevant EPRs, ECPs, legislation and good practice.

2 SITE AUDIT

2.1 Audit Objectives

The objective was to assess:

- Actions taken to close previous audit findings.
- Water monitoring results and compliance. (EPRs W3, W5)
- Air Monitoring results and compliance (EPR AQ2)
- Noise monitoring results and compliance (EPR NV2)
- Incident reporting since previous audit and response
- Community complaints since previous audit and response (EPRs EM2, LV5, S1)
- Assess implementation of Flora Fauna EMP (EPRs B3, B4, B5)
- Assess implementation of Flood Management Report (EPR W4)

The objective of the site inspection was to assess:

- the implementation of controls;
- compliance of field activities and controls with the requirements of the applicable Plans and EPRs as they applied to the works to date; and
- compliance with applicable regulatory and good practice requirements.

2.2 The Audit Process

The audit process for this particular audit consisted of the following steps:

Pre-audit –

- Preparation of an Audit Agenda[1] detailing the audit process and the documents to be reviewed.

Site Audit –

- Interview staff and review the various Plans and ECPs to assess the whether the controls required by the works to date were being implemented;
- Review of the monitoring data to assess compliance with legislation
- Inspect site to physically assess implementation of controls

Post Audit –

- Issue a draft report along with recommendations for issues identified for review by MCDDJV and various authorities.
- Issue final report incorporating comments received.

[1] The Audit Agenda is included in Appendix A.

2.3 Audit Scope

The areas covered by this audit were the EMPs and EPRs listed in section 2.1 above, the site ECPs and the physical operations occurring on the Project site.

The scope of this audit and subsequent audits is not to audit all EPRs and matters, every audit. Rather, each quarterly audit will take a risk-based approach and focus on the relevant construction activities, the risks, plans and controls. The scope will take into account any complaints and feedback from local stakeholders, community and regulatory agencies. Over the duration of construction, the intention is to ensure all aspects of the project are audited at least once. A full EPR auditing scope and schedule is included as Appendix B.

2.4 Classification of Audit Findings

Audit findings are classified according to the following definitions which have been utilised on previous high-profile Victorian infrastructure projects.

Non-conformance (NC)
An instance, event or occurrence that has not-fulfilled a requirement that has been specified in the Strategy, CEMP, ECPs, EPRs, legislation, or approval conditions.

(Note 1: A non-conformance may be an individual non-conformance or a number of minor but related audit findings, which when considered in total are judged to constitute a non-conformance.)

Area for Improvement (AI)
A deficiency in the implementation of the Strategy, CEMP, ECPs, or associated documentation judged to be a risk to the environment, or to environmental management, without constituting an overall failure in the area concerned.

Observation (O)
An audit finding which may relate to an incidental or isolated system discrepancy, which does not compromise the effectiveness of environmental management, or constitute an actual or potential environmental risk.

IREA does not require Observations to be formally closed out after they have been issued and therefore will not report these in subsequent audit reports. It is the responsibility of the MCCJV to consider these findings.

Priority of Recommendations
The severity and risk posed by findings may vary. In order to assist MCCJDV and the reader, each recommendation related to a finding that may require actions to be taken has been allocated a priority level A, B or C, with A being the most serious. The following definitions have been applied to these priority levels.

A - High risk of system failure, legal non-compliance, an EPR requirement or high environmental risk. **Must be corrected as a matter of priority.**

B - A requirement specified in an internal Plan or procedure, is affecting system efficiency, may result in system failure, or is a moderate environmental risk. **Must be corrected.**

3 Previous Audit Recommendations

Previous Finding Status:

"Y" - Completed
"P" - Partially completed
"O" - Open, not actioned
"On-going" - Actions that have commenced, but will need to continue for some period
"NA" - No longer applicable

Recom. No.	Recommendation	Findings	Status
1.	MCDDJV should carry out a review to: (i) identify the potential dust sources which are or may give rise to complaints; and (ii) develop and implement additional and/or changes to existing dust controls that better address the generation of dust from the site.	Areas that generate more dust have been identified and additional water carts can be made available during dry periods (currently have 6 water carts). Speed limits to minimise dust were discussed at toolbox meetings. Areas that can be landscaped and grassed to reduce exposed soil are being identified.	Y
2.	The permanent sediment ponds should be installed as soon as possible. If temporary sediment basins are constructed, they will need to comply with contract specification clause 1200.08(c).	The permanent settling ponds have been added to the ECPs. The designs have been assessed and declarations of their ability to contain and treat run-off provided by a suitably qualified individual (BE Civil). All the basins are functional (i.e will collect stormwater runoff and retain sediment), but not all are fully completed (e.g landscaped and grassed). A sample of basins were inspected during the site inspection and the design manager that inspected the basins was interviewed.	Y

Recom. No.	Recommendation	Findings	Status
3.	A calibrated turbidity meter that measures turbidity in NTU should be obtained. As the soil type changes across the site (and therefore the reflective nature of the particles is likely to vary) turbidity testing should occur at all sample locations using both meters and the results compared. Historical data should then be reviewed in light of the results. The need to replace the current meter with a water meter that measures turbidity in NTU should also be decided based on the results.	Trials were carried out to compare a site meter, which provides turbidity data in FNU, to a second meter reading NTU. Parallel measurements using the two meters were taken in a number of water samples of varying turbidity. There was a maximum difference of 0.5 NTU, which is acceptable.	Y
4.	Samples should be taken from the groundwater wells (excluding those monitoring the former landfill site) where ground water is expected to be encountered and analysed for pH and the waste criteria listed in EPA Victoria Publication IWRG 631. Based on the results, a procedure should then be developed for disposal of ground water in case it is encountered and needs to be removed from site. Areas where groundwater is expected to be encountered during piling activities are Waterways , Springvale Road and Governor Road.	Groundwater samples were taken 15/6/2020 and submitted to ALS to analyse for the EPA waste criteria. MCDDJV were still awaiting results from the laboratory at the time of the audit.	Partial
5.	The following changes should be made to the noise measurement field practices and subsequent noise reports: • The noise meters should be set to "Fast" response time; • A plot of the noise level over time should also be included in the noise report. • If a noise measurement spanned several time periods (e.g. evening and night), then the noise	The noise monitoring was carried out as recommended in the previous audit report. The meter does not provide L10, L90 and L95, but the plots are available which allows the noise levels to be reviewed.	Y

Recom. No.	Recommendation	Findings	Status
	plots should be utilised to assess compliance against the Target for each period. However, if the raw data can be downloaded, then it is preferable if the actual 15 minute Leq values for each time period are calculated and compliance assessed. • The meters should also provide the following, which should be included in the noise report: – maximum and minimum 15 minute Leqs over the measurement time; – the L10, L90 and L95 values (if available); and – the maximum impulse noise		
6.	The noise data should be reviewed to assess compliance with the Project noise Targets as soon as possible. Based on the results of the noise monitoring, the need to carry out investigation of noise sources and/or alter work practices should then be determined.	Noise data was compiled and reviewed.	Y
7.	The site ECPs should be updated to include either the permanent sediment control basins or the temporary stormwater retentions structures, along with any associated stormwater collection drains (either temporary or permanent).	Confirmed that the ECPs have been updated to include the permanent basins.	Y
8.	The current practice of reviewing the raw events data to identify the actual number of complaints and confirming the issue to which the complaint is related should continue.	The review process implemented by the JV is continuing and weekly compliant reports are being prepared.	Y

Recom. No.	Recommendation	Findings	Status
9.	A "significant" number of complaints for one issue or event should trigger a formal investigation and the development of remedial actions to prevent reoccurrences. A formal process should be implemented detailing when such actions should be triggered.	A procedure has been developed that reviews the complaints, identifies trends and develops a response based on the number of complaints.	Y
10.	A dangerous goods diamond label should be fixed to the front of the dangerous goods container at the Governor Road compound.	A DG label has been fitted to the front of the container.	Y
11.	Flammable gases and flammable liquids should not be stored in the same container. A dedicated flammable gas cabinet should be purchased.	The spray cans have been removed from the flammable goods container and the number of spray cans reduced and stored in a separate location.	Y
12.	Fire extinguishers should not be stored inside Dangerous Goods containers and ideally, not on the container itself. Labelled fire extinguisher stations should be established approximately 2 m away from each Dangerous Goods container.	The fire extinguishers have been moved to either the outside of the DG container (due to difficulty in achieving the 2 m distance) or were fitted to the outside of the neighbouring container.	Y
13.	The Project should review the labelling of waste bins and the availability of spill kits near to compound generator fuel tanks. The actions taken at the Governor Road compound could be used as an example of good practice.	The bins have been labelled. Spill kits are located near to generators (viewed bins and kits).	Y
14.	More effective truck cleaning facilities need to be installed at the Governor Road compound exit. A method needs to be developed and implemented so the trucks don't become recontaminated after cleaning,	Rumble grids have been moved closer together to better clean trucks. The grids are cleaned regularly. More crush rock has been placed before and after the rumble grids. There was very little mud carried onto the roadway,	Y

Recom. No.	Recommendation	Findings	Status
	particularly the section intersecting Governor Road where the trucks begin their turn. Entry and exit points to other sections of the Project should also be reviewed for the same potential issues, the effectiveness of existing controls and the risk posed given the site specific circumstances.	indicating the rumble grids were adequately removing mud from trucks exiting the site.	
15.	The current use of the four water carts should be reviewed to determine if they could be scheduled to provide more effective and regular coverage of the Project site. Supervisors should also be requested to assess and report on the speed of heavy vehicles and if the speed appears excessive.	There are additional water carts and extra carts can be sourced during dry periods. Speed limits have been discussed at toolbox meetings.	Y
16.	Toolbox sessions should be used to remind all employees and contractors that spill kits are not rubbish bins.	Toolbox/prestart held and the spill kit issue discussed.	Y
17.	The Project should obtain breakable ties and seal all spill kits. The daily inspections should then check any kit that has a broken seal, restock the kit if necessary and reseal the kit.	Seals, ties or straps have been installed.	Y
18.	The Project should check to see if empty Adblue diesel additive containers can be disposed of as general waste, or need to be disposed of as a contaminated waste.	The supplier provided disposal information. The containers cannot be recycled, but provided they are empty and left to dry out, they can be disposed of into general waste.	Y
19.	The sediment fence down slope from the stockpile south of Zone 1, Gate 4 should be extended northwards in order to prevent any run-off entering the	The sediment fence was extended (viewed).	Y

Recom. No.	Recommendation	Findings	Status
	nearby swale drain during heavy winter rains.		
20.	The Project should ensure the sediment laden water which has collected in the western end of the blocked Old Dandenong Road Drain should either be treated before it is discharged, or preferable, used on-site for dust suppression.	The collected water was reportedly pumped out and used for dust suppression.	Y
21.	The Project should ensure the 205L drums and a 1000L IBC container located on the west side of the Landfill piling operations are disposed of appropriately as soon as possible.	The drums and IBC were reportedly removed on the 25/5/2020.	Y
22.	Employees and contractors should be reminded that any contaminated waste should not be stored on bare soil in an uncontained area. Wastes should only be stored in a secure bunded area.	A new spill procedure, which identifies storage in unbunded areas as a risk, was developed and discussed at prestarts on the 15/5/2020. The procedure will continue to be presented to site personnel and contractors on a periodic basis.	Y
23.	The Project should ensure there are 4 spill kits in the landfill piling area, as required by the ECP. Site inspections should review the number and location of spill kits in other areas of the Project site.	Spill kits are located in the piling area. A review was carried out across the project site and 5 spill kits were found to be missing. These have been restocked.	Y

Summary:

Completed = 22 out of 23 (95.7%)

Partially Completed = 1 out of 23 (4.3%)

Open	= 0 out of 23 (0%)
On-going actions	= 0 out of 23 (0%)
No longer applicable	= 0 out of 23 (0%)

4 Review of Monitoring Data

4.1 Dust Monitoring

MCDDJV operate 2 continuous dust monitors and weather stations that measure PM10 and PM2.5 on a continuous basis. One unit is located at 8 Bradley Close, adjacent the MCDDJV Governor Road compound. A second unit is located at the Din San Nursery at 418 Old Dandenong Road (refer to plans in Appendix C).

PM10 are dust particles which are less than 10 microns (millionths of a meter) in diameter and PM2.5 are particles less than 2.5 microns in diameter. In comparison, human hair can be from 17 to 181 microns with an average of approximately 75 microns. Particles greater than PM10 are mostly filtered out in the nose and throat. PM10 can enter the upper respiratory tract and lungs. PM2.5 particles are small enough to pass deep into the lungs and into the blood stream. Note that PM10 particles include the PM2.5 fraction.

National levels to protect the community's health are in place for PM10 (50 µg/m^3 averaged over 24 hours) and for PM2.5 (25µg/m^3 averaged over 24 hours). These levels have been adopted into law in Victoria in the State Environment Protection Policy (Ambient Air Quality) and are enforced by the Environment Protection Authority of Victoria (EPA).

There are no formal 1 hour averages, however, MCDDJV have adopted a 1 hour PM10 trigger level of 120 µg/m^3. An exceedance of the trigger level results in an SMS being sent to members of the MCDDJV environmental team for investigation and action.

MCDDJV also operate a dust depositions gauge and directional dust gauge at 4 locations. The dust deposit gauges measure dust deposited over a period of time and provide reports as grams of dust per m^2 per month. The directional gauges face north, south, east and west and provide an indication of the amount of dust that came from each direction. In this way, the amount of dust coming from the direction of the project can be compared to the amount of dust coming from other locations. One of the three dust deposition and directional gauges is located in a local residential area, well away from the project, to provide background dust levels. The locations of the dust deposit and direction gauges are shown in Appendix C.

The Project contract sets maximum dust deposition limits of "*...4 g/m^2/month or 2 g/m^2/month above the background measurement, whichever is the lesser.*"

A review was carried out of the dust monitoring data collected to date. The following summarises the monitoring results.

Real time dust monitors

24 Hour Average Monitoring Results

Month	Area	Particle Size	Maximum	Average
March	1	PM2.5	0.6µg/m^3	0.3 µg/m^3
		PM10	4.3 µg/m^3	1.8 µg/m^3
	2	PM2.5	0.9 µg/m^3	0.5 µg/m^3
		PM10	3.7 µg/m^3	1.8 µg/m^3
April	1	PM2.5	3.8µg/m^3	2.8 µg/m^3
		PM10	12.5 µg/m^3	7.5 µg/m^3
	2	PM2.5	4.8 µg/m^3	2.8 µg/m^3
		PM10	13.7 µg/m^3	7.5 µg/m^3
May	1	PM2.5	7.0 µg/m^3	3.9 µg/m^3
		PM10	13.8 µg/m^3	9.0 µg/m^3
	2	PM2.5	7.0 µg/m^3	2.7 µg/m^3
		PM10	15.4 µg/m^3	4.9 µg/m^3

This compares to the 24 hour average national limits of:
– PM2.5: 25µg/m^3
– PM10: 50µg/m^3

1 Hour Average Monitoring Results

Month	Area	Particle Size	Maximum	Average
March*	1	NA	NA	NA
		NA	NA	NA
	2	NA	NA	NA
		NA	NA	NA
April	1	PM2.5	11.3µg/m^3	2.9 µg/m^3
		PM10	21.1 µg/m^3	7.6 µg/m^3
	2	PM2.5	14.1µg/m^3	2.9 µg/m^3
		PM10	26.1 µg/m^3	7.7 µg/m^3
May	1	PM2.5	11.3 µg/m^3	2.9 µg/m^3
		PM10	21.1 µg/m^3	7.6 µg/m^3
	2	PM2.5	15.4µg/m^3	4.3 µg/m^3
		PM10	29.7 µg/m^3	9.5 µg/m^3

* - March readings were recorded on the temporary dust monitors provided by the supplier while the MCDDJV monitors were being upgraded (refer to discussion section below). The 24 hour average plots were printed out at the end of March to check results. However, the temporary monitors were returned to the supplier without downloading the full numerical data to allow the 1 hour averages to be calculated. By the time the project personnel became aware of this omission, the data had been lost.

This compares to the 1 hour average project limit of:
– PM10: 120µg/m^3

Dust Deposit Gauges

March	– The two fortnightly reports did not exceed the dust criteria.
April	– The two fortnightly reports did not exceed the dust criteria.
May	– The two fortnightly reports did not exceed the dust criteria.

Directional Dust Gauges

March	– The directional gauges at location 2 (north end of site) and 3 found dust blowing from the site was below the dust levels from other directions. The directional gauge in location 4 for both fortnights were higher from the site, as this location is in line with the project site and receives dust from the entire alignment.
April	– The monthly deposition results were all less than the limits. The directional gauge at location 3 and 4 showed the highest dust readings were from the direction of the site.
May	– The monthly deposition results were all less than the limits. Again, the directional gauge at location 4 showed the highest dust readings were from the direction of the site.

Discussion and Conclusions

Based on the monitoring data, the following conclusions can be arrived at:

- The PM10 and PM2.5 data is well below the national health levels, therefore, the risk to human health is very low.
- The off-site dust deposition levels are below the target levels.
- The dust level coming from the project area is slightly above background at times, therefore dust deposition levels in the residential area may occasionally be slightly higher than normal.

Even though the current monitoring confirms that dust levels are below the target limits, there are short term events when the dust levels are higher than normal. Therefore, current efforts to reduce dust should continue.

NOTE: In March, the suppliers of the real time dust monitors informed the project personnel that there were issues with the all the monitors they had supplied nationally. It appears the air sampling pumps in the dust monitors were undersized. Consequently, the monitors were unable to draw in a sufficient quantity of air during high wind conditions. This caused the real time dust monitors to underestimate the amount of dust during these high wind events. However, the amount of underestimation is unknown. The supplier provided upgraded replacement dust monitors while the MCDDJV units were upgraded and replaced on the 26th March.

It was also noted that there were gaps in the data. The supplier advised that there appeared to be an issue with the power supply not providing sufficient power (the units were powered by solar panels). This could have been due to grass over the solar panel, therefore, the panel was

been raised above ground level. To avoid any power issues in Area 2, the unit was moved from Australian Sheet Metal site to the neighbouring MCDDJV compound and connected to the site generator. Area 1 is still loosing data, therefore, the supplier, Air-Met Scientific, has been asked to review the operation and maintenance of the unit so it can provide continuous data.

Opportunity for Improvement

In order to reduce the risk of losing monitoring data, the dust monitoring data should be downloaded as soon as possible.

Recommendation:

1. **All dust monitoring data for the previous month should be downloaded from the real time analysers at the beginning of each month.**

2. **Air-Met Scientific should be required to identify and rectify the cause of the data loss in the Area 1 real time dust monitor. The monthly data should be reviewed for on-going occurrences of data loss. If this issue continues for longer than 1 month, then Air-Met Scientific should be asked to provide a temporary unit and power supply until the existing unit can be repaired.**

4.2 Water Monitoring

The MCDDJV Water Management and Monitoring Plan sets several water quality parameters for any water discharged from the site, as shown below:

- Turbidity of less than 30 NTU (Nephelometric Turbidity Units);
- pH 6.5-8.3;
- Salinity and suspended solids equivalent to background concentrations; and
- No visible floating oil, grease, scum or litter, colours or odours.

A review was carried out of the monitoring data, which identified several issues that need to be addressed.

1. Naming of sample points in the monitoring schedule needs to be consistent as locations are noted under different names. This makes it difficult to review the data.
2. There are 5 upstream monitoring locations in the waterway area (southern end of the project site), which all discharge to the one down stream monitoring location. Due to the erection of a security fence, environmental staff no longer have access to the upstream monitoring site located in Moorabbin Creek (6US). Historically, Moorabbin Creek tends to have higher turbidity levels, which contribute to the turbidity in the downstream location. However, as 6US is not being monitored, it is not possible to assess all the contributions to the downstream location.
3. Due to changes in the site drainage since the site was first established, some drains that were previously discharging off-site have been blocked off, other locations are now

internal drains that do not discharge and some downstream locations do not have a corresponding upstream location to assess the project impact.

Monitoring Results

There were 8 occasions over the approximate 3 month period commencing in March where the downstream turbidity levels were above the upstream turbidity levels. Three of these occasions occurred following high rain events. The events are summarised below.

Date	Location	Turbidity (FNU)	Comments
23/3/20	Woodlands Drain US	32	NIL
	Woodlands Drain DS	87	
9/4/20	Centre Dandenong Rd US	112	High rainfall event
	Centre Dandenong Rd DS	182	
9/4/20	Woodlands Drain US	223	High rainfall event
	Woodlands Drain DS	329	
25/4/20	Woodlands Drain US	34	NIL
	Woodlands Drain DS	54	
30/4/20	Grange Rd Drain Us	114	High rainfall event
	Grange Rd Drain DS	128	
18/5/20	Grange Rd Drain Us	72	NIL
	Grange Rd Drain DS	98	
10/6/20	Grange Rd Drain Us	76	NIL
	Grange Rd Drain DS	104	
17/6/20	Grange Rd Drain Us	52	Slow flow
	Grange Rd Drain DS	74	

Treated Water Discharges

Excess water collected in the site settling ponds need to be treated to achieve the turbidity and pH levels required by the project contract prior to discharge (less than 30 NTU/FNU and a pH of 6.4 – 8.3). The project has implemented a permit process for testing and recording the pond water quality prior to discharge. A summary of the water quality results taken prior to discharge are shown in the table below.

Date	Turbidity (FNU)	pH
10-Mar-2020	3.8	7.3
23-Mar-2020	11.5	6.99
23-Mar-2020	18.1	7.47
22-Apr-2020	20.6	7.89
22-Apr-2020	6.5	8.06
24-Apr-2020	28	8.1
14-May-2020	26.4	8.22
16-May-2020	22.6	8.5
21-May-2020	22.9	7.89

Discussion and Conclusions

The DS1 readings located in the southern area wetlands are slightly higher in turbidity than the upstream measurements in the lake area (refer to Appendix D for water sample locations). However, as US6 is not recorded and US6 combines with the other upstream flows to produce the downstream flow, it is not possible to determine if the slight increase in turbidity is due to discharges from the site, or due to higher turbidity levels in US6. It is therefore essential that monitoring be reinstated at US6 to identify any impact due to the project works.

A review also needs to be carried out to remove monitoring points that are not providing useful data (e.g. internal swales and the monitoring of external drains which are no longer receiving any site discharge). Locations should be chosen where a clear upstream and downstream of works can be demonstrated. Water sampling maps and the Water EMP should then be updated. All records should use the same water monitoring location names to make a review of results easier.

The monitoring results found the downstream turbidity levels are at times elevated, presumably due to run-off from the construction site. The results should be reviewed immediately after monitoring. Any elevated turbidity results should require an inspection of the site boundary potentially contributing to the elevated turbidity. Any obvious run-off locations, or locations where uncontained soil or fill material could be entering the drain, should be identified and rectified. Each event should also be logged as a non-conformance and the proposed actions tracked to completion.

The environmental impact of the elevated turbidity during low flow periods (as opposed to the technical compliance discussed above) is not significant as turbidity levels are still relatively low. The turbidity increase during high rain events is of more concern, as the levels can reach moderately high levels.

The water monitoring results recorded on the discharge permits demonstrate that the water quality of the discharges from the project site were of a suitable quality and should not adversely impact on the receiving waters.

Based on the results to date, it can be concluded that the discharge of treated water is acceptable and should not be causing any adverse impacts. Due to the change in drainage, the current monitoring locations make it difficult to assess the level of run-off and therefore impact of the project. However, increases in turbidity at times appear to indicate that some run-off may be occurring. The establishment of new sampling locations based on the current drainage layout is therefore essential.

Opportunity for Improvement

The water monitoring locations and recording process should be reviewed given changes to drainage on the site.

Recommendations:

3. **MCDDJV should review the water monitoring locations to ensure the monitoring is providing results that can be used to assess the project impacts. Each downstream monitoring location should have a corresponding upstream monitoring location.**

4. **Access to water monitoring location 6US should be provided to the project environmental personnel as soon as possible and the monitoring in this location reinstated.**

5. **Water monitoring records should log results using the same location names as those shown on the water monitoring location map. If the monitoring location needs to be moved due to a one-off event, or additional monitoring occur for some reason, then this should be clearly noted on the monitoring record spreadsheet.**

6. **Water monitoring results should be reviewed immediately after monitoring. Any elevated turbidity results should require an inspection of the site boundary potentially contributing to the elevated turbidity. Any obvious run-off locations, or locations where uncontained soil or fill material could be entering the drain, should be identified and rectified. Each event should also be logged as a non-conformance and the proposed actions tracked to completion.**

4.3 Noise and Vibration Monitoring

4.3.1 Noise Targets

Noise targets have been set for residential and non-residential locations as shown in the following table. Neither the Victorian EPA Noise Control Guidelines nor the VicRoads Guidelines specify a noise target for works during Normal Working Hours. Therefore, construction noise targets for non-residential uses have been adopted based on the NSW EPA Interim Control Noise Guidelines (ICNG), consistent with the approach applied on recent major Victorian infrastructure projects such as the Metro Tunnel Project and West Gate Tunnel Project.

There are different targets for day, evening, night and weekend periods. The targets are also based on the preconstruction background noise levels. The areas bordering the project boundaries have therefore been broken up into 8 “Noise Control Areas” (NCA). Each NCA has noise targets based on the background levels.

Day / Evening / Night / Weekend Periods

Period	Time
Day	7 am – 7 pm Monday to Friday, and 7 am – 3.30 pm Saturdays

Evening and Weekends	7 pm - 10 pm Weekdays 3.30 pm to 10 pm Saturdays Without prior approval, no work shall be carried out on any Sunday, public holiday, between Good Friday and Easter Monday inclusive, or during the Christmas to New Year period.
Night	10 pm – 7 am many day

Construction noise targets for residential land uses

NCA[1]	Construction noise target, dB(A) $L_{eq,15min}$			
	Normal Working Hours		Weekend / Evening Working Hours[4]	Night Hours[5]
	Noise Target[2]	Highly Noise Affected[3]		
NCA1	55	75	52	36
NCA2	55	75	52	36
NCA3	50	75	46	33
NCA5	49	75	50	36
NCA6	51	75	48	36
NCA7	62	75	59	40
NCA8	62	75	59	40

1 - NCA Areas are shown in Appendix E. NCA area 4 is purely rural and therefore is not included in the table.

2 - Noise target (Leq,15min) is the background noise level + 10 dB. This represents the level above which there may be some community reaction to noise as per the NSW EPA ICNG.

3 - Highly noise affected level of 75 dB(A) Leq,15min. This represents the level above which there may be strong community reaction to noise as per the ICNG.

4 - The Weekend/Evening target has been set at Background + 10 dB(A) in accordance with Victorian EPA Noise Control Guidelines requirements for projects lasting less than 18 months. It is not expected that works during such hours would extend beyond 18 months.

5 - The Night target has been set at the RBL level, consistent with VicRoads Guidelines requirements. It is noted that the Victorian EPA Noise Control Guidelines requires inaudibility within habitable rooms with windows and doors closed and this may impose more stringent requirements in some situations.

Construction noise targets for non-residential land uses

Type of sensitive use	Construction noise target, dB(A) Leq,15min
Classrooms at schools and other educational institutions (e.g. Chelsea Heights Primary School)	Internal: 45 External: 65
Hospital wards and operating theatres	Internal: 45 External: 65
Places of worship (e.g. Christ Church Dingley)	Internal: 45 External: 65

Active recreation areas (e.g. Chadwick Reserve)	External: 65
Passive recreation areas (e.g. wetlands and Braeside Park through NCA4)	External: 60
Community buildings	Dependent on usage. If required, refer to AS/NZS 2017:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors* for internal target.
Commercial buildings	External: 70
Industrial buildings	External: 75

4.3.2 Construction Noise Monitoring

Noise monitoring has occurred during day, evening and night periods in several areas. The results are summarised below. The green, yellow and red shading represents day, evening and night periods respectively.

Noise Area NAC5 (residential)

Date	Activity	Audible Noise from MCDDJV Activities	LA(eq) 15min*
16/04/2020	Civil works	Dozer & trucks	57.6
17/04/2020	Civil works	Dozer & trucks	61.8
23/04/2020	Civil works	Dozer movement	52
12/05/2020	Morning Pre-start	No	47.2
06/05/2020	Civil works	Dozer & trucks	57.4
07/05/2020	Morning Pre-start	No	54.3
12/05/2020	Morning Pre-start	Pre-start personnel talks and movement	47.2
13/06/2020	Civil works	Dozers, trucks	57.5
15/06/2020	Waterways piling	Piling	**79.4**
20/06/2020	United Energy drilling works	Float reversing beeper	**82.1**
21/06/2020	United Energy drilling works	No	55.3
21/06/2020	United Energy drilling works	No	55.8
21/06/2020	United Energy drilling works	No	55.3

* - Values in red text were above the 75 dB(A) Leq 15 min Highly Noise Affected Target

Period	Target dB(A) Leq 15 min
Day	49
Evening/Weekend	50
Night	36

Noise Area NAC3 (residential)

Date	Activity	Audible Noise from MCDDJV Activities	LA(eq) 15min*
17/04/2020	Saw cutting, excavation work	Excavation, reversing beeper	**80.1**
17/04/2020	Excavation, front end loading	Excavator engine, reversing beeper	**90.6**
17/04/2020	Saw cutting, excavation work	Excavator engine, reversing beeper	65.1
17/04/2020	Saw cutting, excavation work	Reversing beeper	**92.1**
17/04/2020	Excavation, front end loading	Reversing beeper	59
17/04/2020	Excavation, front end loading	Excavation, reversing beeper s	**75.1**
17/04/2020	Saw cutting, excavation work	Excavator engine, reversing beeper	**80.3**
17/04/2020	Excavation, front end loading	Excavator engine, reversing beeper	74.3
17/04/2020	Excavation, front end loading	Reversing beeper	62.5
17/04/2020	Excavation, front end loading	Reversing beeper	69.9
17/04/2020	Excavation, front end loading	Excavation, reversing beeper	**78.9**
17/04/2020	Excavation, front end loading	Excavation, reversing beeper	71.5
17/04/2020	Excavation, front end loading	Excavation, reversing beeper	74
17/04/2020	Saw cutting, excavation work	Excavator engine, reversing beeper	70.3
17/04/2020	Saw cutting, excavation work	Saw cutting, front end loading	**90.1**

* - Values in red text were above the 75 dB(A) Leq 15 min Highly Noise Affected Target

Period	Target dB(A) Leq 15 min
Day	50
Evening/Weekend	46
Night	33

Noise Area NAC1 (residential)

Date	Activity	Audible Noise from MCDDJV Activities	LA(eq) 15min*
10/05/2020	Excavation, machine tracking on road	Excavation	71.2
10/05/2020	Excavation, machine tracking on road	Excavation	**77.3**
10/05/2020	Excavation, machine tracking on road	Excavation	**75.2**
10/05/2020	Excavation, machine tracking on road	Excavation	73.3
10/05/2020	Excavation, machine tracking on road	Excavation	71
10/05/2020	Excavation, machine tracking on road	Excavation	72.28

* - Values in red text were above the 75 dB(A) Leq 15 min Highly Noise Affected Target

Period	Target dB(A) Leq 15 min
Day	55
Evening/Weekend	52
Night	36

4.3.3 Vibration Targets

The project contract defines the maximum vibration allowed, based on the type of building or structure. The maximum vibration criteria are shown in the following table.

Vibration criteria for assessing potential for damage to buildings

Type of Structure	Peak Vibration Velocity at foundation (mm/s)
Reinforced or framed structures. Industrial and heavy commercial buildings	20
Unreinforced or light framed structure. Residential or light commercial type buildings	5
Structures that because of their sensitivity to vibration do not correspond to those listed above and are of great intrinsic value (e.g. heritage listed buildings)	3

The MCDDJV Noise and Vibration Management Plan also set a number of vibration targets based on the potential to cause annoyance to neighbours.

Vibration criteria for assessing potential annoyance to occupants

Location	Peak Vibration Velocity at foundation (mm/s)
Residential (Night – 10pm to 6 am)	0.4
Residential (Day – 6 am to 10 pm)	0.56
Commercial office (Day – 6 am to 10 pm)	1.1
Workshop (Day – 6 am to 10 pm)	2.2

4.3.4 Vibration Monitoring

Vibration monitoring has occurred at a number of locations on and around the project site, as summarised below.

Date	Monitoring Location	Activity	Vibration (mm/s)
23/4/2020	South of Mordialloc Creek, 195 m from boundary of works area and 35 m from residents' houses which lodged vibration complaints	General construction	Max 0.31 Aver. 0.26
12/5/2020	At 3 residents' properties that lodged vibration complaint, south of Mordialloc Creek, 230 m from boundary of works area.	General construction	Max. 0.2 Aver. 0.1
15/5/2020	At a residential property south of Centre Dandenong Rd., approx. 40m from works activities. Nine 5 minute measurements over 1 hour daytime period.	Operating a vibrating pad foot roller and excavation activities.	Max. 0.56 Aver. 0.33
12/6/2020	Four monitoring locations located 1, 2, 3 and 4 metres from the pile.	Piling operations at the waterways	1m – 2.8 2m – 2.5 3m – 2.3 4m – 1.7

4.3.5 Discussions and Conclusions

Noise Monitoring:

All the noise measurements shown in the above tables were above the target levels set in the project's Noise EMP. Of greater concern is the noise levels which exceeded the "Highly Noise Affected" target of 75 dB(A) Leq 15min (in red text in the above tables), particularly those that occurred in evening/weekend periods.

If this work can be carried out during the day time period, it would cause less disruption to neighbouring residents. Of particular concern were the waterways piling activities in area NAC5 carried out into the evening period on the 15/6/20 and saw cutting in area NAC3 on the weekend of the 17/4/20.

It was also noted that the measurements locations in area NCA5 were on or near the construction site itself. However, the target levels are based on backgrounds measured in the residential area, which is over 100m away from the boundary of the project site in this area. Therefore, the NCA5 measurements shown above will be higher than the noise levels the residents would have experienced. Future noise monitoring should always occur at the closest accessible residential property to the work activities.

Several observations made during the noise measurements referred to reversing beepers being audible at the measurement location. In some instances, the reversing beepers were the only noise audible from the works area. MCDDJV should make sure that all reversing beepers are the low noise squawker type, including those on vehicles coming onto the site for short periods, such as equipment floats delivering or collecting items of plant.

It was noted that the noise targets were based on background noise measurements taken before construction began. The report by the noise consultant (Resonate) relied on background levels measured away from locations away from major roadways. This resulted in very low background noise levels that are not applicable to sites located next to major roads, where there are high levels of traffic noise. Resonate produced a second report in January 2020, which resampled a number of the locations previous measured and included several additional sites located close to major roadways along the project alignment. It would be more realistic if all the available background noise data was used to determine the noise levels along the alignment, rather than assigning a single noise level to each noise control area.

Vibration Monitoring:

Vibration monitoring did not identify any exceedance of the target vibration values. One 5 minute vibration reading was at the vibration target for daytime human comfort (0.56 mm/s) for a site close to the works (residential building was approximately 40m from the actual works activities). Operations consisted of a vibrating pad foot roller to compact soil (the largest source of vibration) and general excavation works (excavator and trucks). Therefore, some low level vibration may be noted at the property at times, though it should not cause an annoyance.

Vibration complaints were lodged by several residents south-west of the project site in the waterways area. Vibration measurements taken next to the 3 residential buildings found the vibration levels were well below both the day and night time human comfort vibration targets. The acoustic consultant's report stated that the occasional vibrating windows noted by the residents are very likely due to the low frequency noise from the construction equipment, rather than any ground vibrations.

Now that piling has commenced in the waterways area, it would be useful to carry out additional vibration monitoring in near-by residential areas to the east while piling is occurring.

Opportunities for Improvement

Works carried out close to a residential area, particularly those works hard up against residential boundaries, will result in an increase in the noise level. However, all efforts should be made to minimise high noise activities during the more sensitive evening, night and weekend periods. Any obvious contributions to the noise level should be noted during monitoring and where possible, noise monitoring occur at or as close as possible to the sensitive receptors in order to assess the impact.

Monitoring data should be recorded and reviewed as soon as possible to ensure data is not lost and that any issues are identified in a timely manner.

Recommendations:

7. **High noise activities such as piling, or noisy activities very close to residential properties, should only occur during permitted construction daytime periods whenever possible.**

8. **The noise monitoring data should be reviewed as soon as it is available. As a minimum, those noise measurements that exceeded the "Highly Noise Affected" target of 75 dB(A) Leq 15min should be investigated to determine why they occurred and if the noise levels could be reduced, or activities changed to the less sensitive day time period.**

9. **All noise measurements should be taken at the closest residence to the work activities. If one of the background noise monitoring locations (L1, L2, etc.) shown on the noise area map in Appendix E is close to the works, then the noise measurements should be taken at these locations to provide a direct comparison to the background levels measure pre-construction. A procedure should be developed detailing how to choose the noise monitoring location. The procedure should also include calibration requirements and the meter settings discussed in recommendation 5 of the March 2020 audit report. Personnel carrying out the noise monitoring should be instructed in the implementation of the procedure.**

10. **Personnel taking noise measurements should note down if any of the reversing beepers are not an approved low noise squawker type. They should also note any significant impact type noise (bangs, crashes, etc.) that could be an annoyance to neighbouring residents. If they do occur, these should be investigated to determine the reason for their occurrence and if they can be prevented.**

11. **All available noise background data should be used to produce contour maps of noise levels along the alignment. The day and evening background levels can then be adjusted by adding 10 dB(A). A number of background levels were measured on private properties very close to the residences. It may not be practical for MCDDJV personnel to access these properties and the closest measurement will be the resident's boundary. The adjustment to the background level in order to produce the target noise level should include an additional allowance if there is any difference in measurement locations i.e. background measured on-site near house cf. measuring off-site at the resident's boundary. A second set of contour maps should then be produced showing the noise target contours along the alignment for day, evening and night periods. The contours should then be used going forward to determine the target noise levels and the project site plans and procedures amended accordingly.**

12. **Vibration monitoring should be carried out in a closest residential area to the east of the Waterways piling operations, while piling is actually occurring.**

4.4 Soil and Groundwater Monitoring

MCDDJV is required to monitor the depth to the underlying aquifer in a number of the site groundwater monitoring bores. This monitoring has been occurring as required. Additionally, samples of groundwater were collected on the 15/6/2020, as required by a previous audit recommendation, and sent for analysis. The results were not available at the time of the audit, but will be reviewed at the following audit. Future audits will be reviewing the management of Potential Acid Sulphate Soil which has recently been encountered in the Waterways area.

Opportunity for Improvement

NIL

5 Environmental Plans

5.1 Flora and Fauna EMP

5.1.1 Pre-construction Controls

Local fauna and flora surveys were carried out to identify the locations of sensitive flora and fauna sites. Fauna that would be impacted on by construction activities were relocated by professional handlers and a register relocated fauna maintained (primarily frogs, skinks and, snakes).

As detailed earlier on this report, silt curtains and silt fences were in place to protect the on-site and surrounding waterways. To prevent frogs entering the works area, the silt fences in locations that may contain frogs (e.g. the wetlands area in the southern portion of the project), have also had frog fencing incorporated into the silt fence.

Sensitive flora that is to remain on the project site has been identified and marked onto the CMPs. “No-Go Zone” fences were installed around the identified protected flora before construction commenced along with signage on the fences.

Where sensitive flora had to be removed for the new roadway, planting offsets have been determined as per regulatory requirements. An offset compensates for biodiversity losses arising from native vegetation removal. Offset owners (in this case MRPV) secure and manage offset sites either locally, or at another site to improve native vegetation condition. Offset sites can either be managed directly by the offset owner, or can be managed by a third party who is paid for their services by the offset owner. An offset can be the ongoing protection and management of:

- a patch of native vegetation
- one or more scattered trees, or
- an area of revegetation.

MRPV secured the required amount of offsets in September 2019, before the project commenced.

All employees and contractors working on the project have been required to attend a site induction before they can commence works on the site. The induction includes details of fauna species that may be encountered on the project site and the actions that must be taken to ensure the individual animal is protected and relocated, if required. The induction also informs attendees of the flora "No-Go Zones" and the need protect these areas.

5.1.2 Studies and Construction Controls

Several fauna and flora inspections and fauna relocation activities have occurred. An ecologist report was prepared for each activity. These are summarised below.

- The design of the platform across the Waterways area was approved by Melbourne water and reviewed and approved by a qualified ecologist to ensure minimum impact to fauna during construction. The platform will be removed when construction is completed.

- The removal of vegetation in the wetlands was carried out under the supervision of an ecologist. An excavator at the wetlands slowly dug out the vegetation in the waterway. It spread the vegetation out on the ground for the ecologist to inspect for fauna. When fauna was located, it was caught and relocated to adjacent habitat. The activity relocated 15 short-finned eels, 4 glossy grass skinks, and a copperhead snake. The ecologist also inspected the vegetation that was excavated out of a swale near Springvale road. Two yabbies were caught and relocated. A rabbit, 2 field mice and a rat were also disturbed during the excavation and self relocated to adjacent habitat.

- The drain off Governor Road also required stripping of vegetation. Ecologists were present during the initial works in the December 2019. During this period, approximately 100 eels and a bucket full of juvenile native fish were captured and released.

- Daily inspections are carried out to record birds present in the wetland area. There have been a significant number local birds noted, but no migratory shore birds have been seen during the project construction period.

- An ecologist was present during the stripping of vegetation from a small island in Mordialloc Creek. One small flathead, three eastern gambusia and five freshwater shrimp were caught and relocated.

- Before clearing the site, vegetation was inspected to identify hollows and other habitats. Habitat trees were spray painted with a "H" and trees requiring removal spray painted with an "X".

- Ecologists have been present when trees required removal. Tree removal required the trees to be inspected for any nests or occupied tree hollows. Several possums were relocated. Birds eggs found were destroyed by the ecologist. Trees were assessed before removal to identify sections which could be repurposed, e.g. for use in wetlands, hollows for habitat creation and limbs for fauna bridges.

The project also maintains a Fauna Flora Register. The register lists fauna that was captured and relocated, active breeding sites and the assessment of habitats, which identifies the presence of any fauna in the various habitat zones on the project site.

A "No-Go-Zone" (NGZ) procedure has also been developed that details how the NGZs were identified and how the NGZ maps can be viewed for the different area on the project site.

An inspection was also carried out of the project site. No fauna and flora issues were identified. It was also identified that significant areas of vegetation which were marked for removal have been retained. Further details are provided below in the Site Inspection section of this report (Section 9).

There have been several issues with No-Go-Zones, as described in Section 7 below, however, the environmental impacts have not been significant. Also, the removal of small areas of vegetation from NGZs is more than off-set by the retention of vegetation described in the previous paragraph.

5.1.3 Discussion and Conclusions

Fauna and flora management activities and controls are consistent with good industry practice, regulatory requirements (legislation & EPRs) and contractual requirements. The use of ecologists to supervise site activities which may impact on fauna and flora will reduce any potential impacts. Issues to date have not been significant and removal of small areas of vegetation in No-Go-Zones is more than off-set by the additional vegetation retained on the project site.

Opportunity for Improvement

NIL

5.2 Flood Management

5.2.1 Flood Management Review

A flood modelling report was prepared in November 2019 by the consultants Jacobs Australia Pty Ltd. The report modelled storm events and run-off from the final project design. The report also included the design of site drains which would be sufficient to collect and carry the expected quantity of stormwater during sever storm events, to prevent the site from flooding. Even though the report was based on the final design (i.e. the project site once construction is completed), the storm events modelled and the size of drain required to collect the run-off is still applicable to the construction site.

The sizes of the settling ponds required to remove sediment from the stormwater prior to discharge are based on the water quantities predicted in the flood modelling report. A review was carried out of the proposed ponds by a suitably experienced civil engineer and a

declaration issued stating the ponds were designed to collect and treat the specified quantity of stormwater.

5.2.2 Controls

Drains and settling and settling ponds built on the construction site are the final design. Therefore, they should be capable of collecting and treating stormwater during significant storm events. The ponds and drains have not been fully landscaped and grassed, however, they are still serviceable.

5.2.3 Discussion and Conclusions

The drains and settling ponds on the construction site should be capable of collecting, containing and treating stormwater run-off during sever storm events. This should prevent flooding of the construction site.

Opportunity for Improvement

NIL

6 Complaints Management

Complaints can be generated by members of the public, motorists, community groups, regulators and businesses. They can be received via emails, phone calls, SMS, walk-ins, or letters.

These can be made directly to MCDDJV or to a contact centre that collates enquires and complaints for all MRPV projects and passes them on to the relevant project for response. These can be passed to either MRPV or MCDDJV depending on the nature of the enquiry. Records of complaints are compiled and reported weekly to MRPV.

All incoming and outgoing interactions with stakeholders are logged as individual ‘events’ in the Consultation Manager database used by the project, whether they are a simple enquiry from a member of the public, or a project-based complaint.

Each interaction is also logged as a unique event, even if related to a single complaint. For example, if the project responds to a complaint, a member of the public phones several times regarding the one issue, or there are back and forward phone calls between a member of the public and the project, each of these interactions is logged as a unique ‘event’. Without proper filtering, each event can then be presented as a unique complaint, distorting the actual number of complaints.

Since February, the Project's Community Engagement personnel have reviewed the incoming events data in the Consultation Manager database to filter and identify the number of unique complaints. The weekly complaint summaries also included descriptions of the issues raised by each individual lodging the complaint and the actions taken by MCDDJV in response to the complaint.

Following is a summary of the raw events data. The summary has focussed on the environmental issues relevant to the scope of this audit, namely:

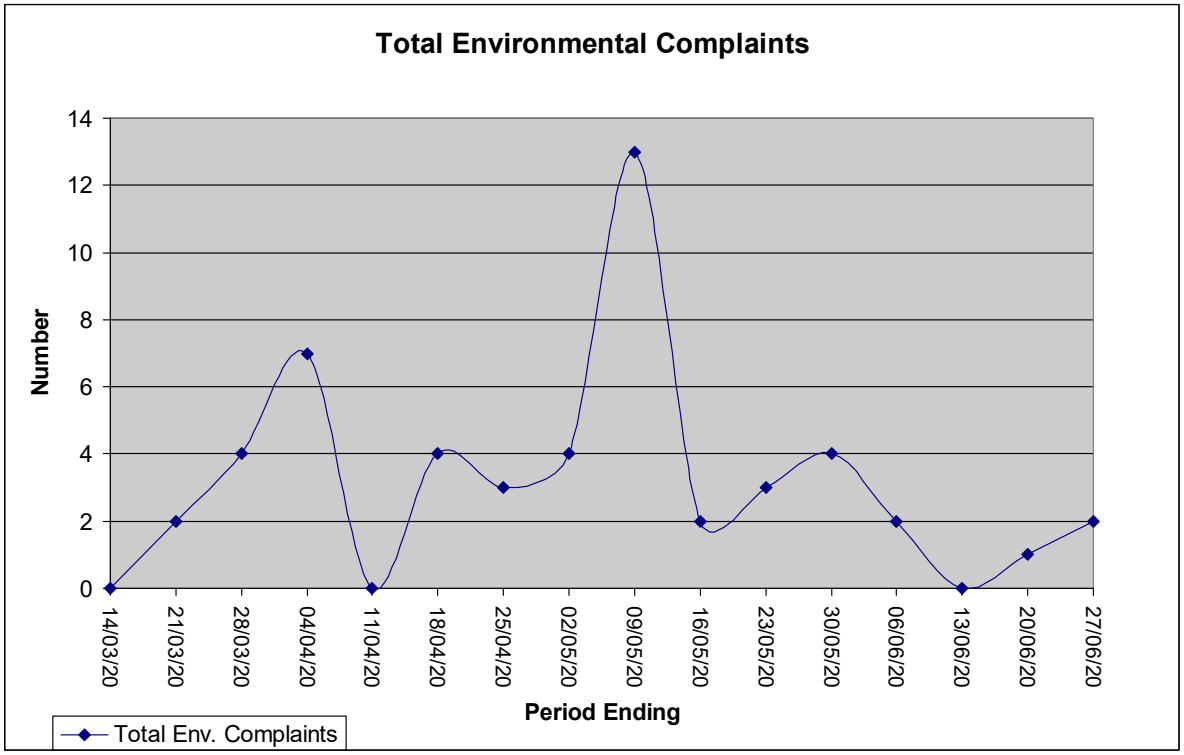
- Dust/Air
- Noise
- Vibration
- Water
- Fauna/Flora
- Night Works/Light Pollution

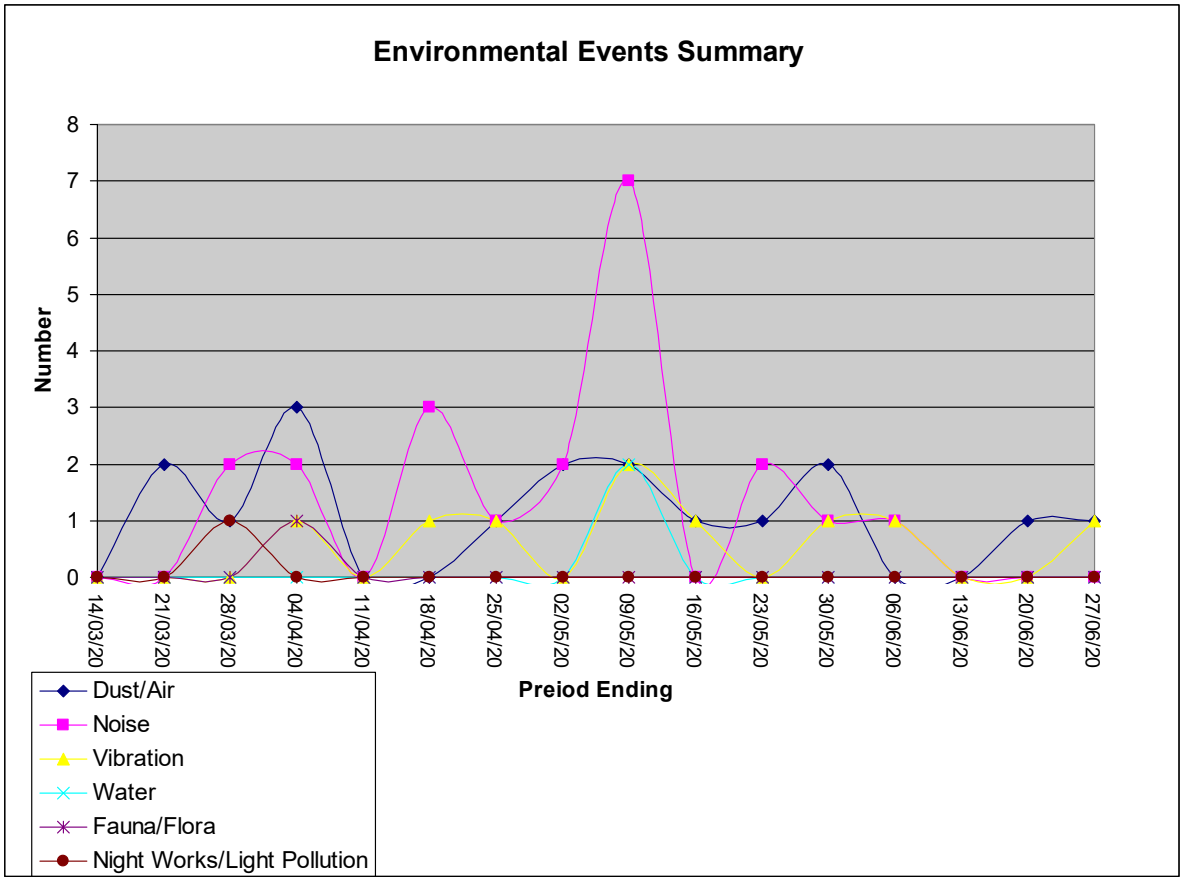
Summary of Raw Events

Period Ending	Total Events[1]	Dust/ Air	Noise	Vibration	Water	Fauna/ Flora	Night Works/ Light Pollution
14/03/20	0	0	0	0	0	0	0
21/03/20	2	2	0	0	0	0	0
28/03/20	4	1	2	0	0	0	1
04/04/20	7	3	2	1	0	1	0
11/04/20	0	0	0	0	0	0	0
18/04/20	4	0	3	1	0	0	0
25/04/20	3	1	1	1	0	0	0
02/05/20	4	2	2	0	0	0	0
09/05/20	13	2	7	2	2	0	0
16/05/20	2	1	0	1	0	0	0
23/05/20	3	1	2	0	0	0	0
30/05/20	4	2	1	1	0	0	0
06/06/20	2	0	1	1	0	0	0
13/06/20	0	0	0	0	0	0	0
20/06/20	1	1	0	0	0	0	0
27/06/20	2	1	0	1	0	0	0
TOTALS	53	17	21	9	2	1	1

1 – Total events include environmental issues only (i.e. dust, noise, vibration, water, fauna/flora and night works/light pollution). Note: A single complaint may have referred to a number of issues. In these cases, each issue raised has been recorded as a separate event in the above table e.g. if a resident referred to both dust and noise issues, then each issue was recorded separately.

The data in the above table is presented graphically below.





As can be seen in the above table, noise and dust events are the most frequent events. Of note, are the 7 noise complaints that occurred on the 8th May 2020. The complaints were all related to loud construction noise that extended into the Friday evening period (i.e. after 7 pm). Based on the number of noise complaints due to a single event, and in accordance with

it's complaint response procedure, MCDDJV implemented a full investigation of the event. A description of the incident is provided in Section 7 of this report.

The above noise complaint level reinforces Recommendation 6 of this report, that is, that high noise activities, or noisy activities very close to residential properties, should only occur during daytime periods.

The Project's responses have been documented in the weekly complaint spreadsheet. The responses appear appropriate given the complaint type and MCDDJV's ability to take action.

Complaint levels are a good indication of how well controls to protect the community are working. Therefore, the current practice of reviewing and filtering the raw events data to identify the actual number of complaints, confirming the issue the complaint is related to and then taking action based on the level of complaints is strongly supported.

Opportunity for Improvement

NIL

7 Incidents and Non-Conformances

7.1 Reported Incidents

MCCDJV reported six operational incidents that occurred since the last audit. Three involved vehicles rupturing fuel tanks on uneven ground and spilling diesel, one was a hydraulic hose break that release hydraulic oil, one related to the removal of vegetation from a No-Go-Zone without informing MRPV and one was due to multiple noise complaints.

The four spill incidents involved small volumes of fluid and the resulting contaminated soil was removed for disposal as a contaminated waste. Investigations found that some truck drivers were taking more direct routes off the assigned access road to save time, resulting in damage to the vehicle fuel tanks. Drivers have now been informed they will need to pay the clean-up costs for any spill they cause, which appears to have resolved the issue.

As part of the project, a pipeline owned and operated by Esso required works to be carried out before the project could proceed. Access to the pipeline required removal of 200m^2 of vegetation in a Wetlands area No-Go-Zone. Under the Pipeline Act, Esso has the authority to carry out any necessary works within the pipeline easement that rans through the No-Go-Zone. It therefore appears MCCDJV had approval to remove of vegetation under Esso's authority. A fauna and flora inspection was therefore carried out and the vegetation was removed. However, MCCDJV should have also received approval MRPV before it carried out the works, as required by the construction contract. The failure to gain approval from MRPV resulted in the incident report.

There was one incident report raised due to 7 noise complaints during evening works on Friday 8th May 2020. The incident investigation found:

> "*On Friday the 8th of May, Zone 5 Governor road south had approval to work until 7pm with forecasted inclement weather over the weekend and site preparation needed to be completed prior to end of shift.*
>
> *When the Supervisor / Superintendent is aware of impending inclement weather the cessation of trucks delivering material occurs at 1500 to enable adequate time to seal the ground.*
>
> *The request was made to stop trucks delivering at 1500 however this did not occur, and trucks continued to deliver material until 1630. Due to the material being provided from basement digs across the Melbourne Metropolitan area, the trucks could not be turned around. The flow-on effect from this meant a reduced amount of time to secure and seal the freshly delivered material.*
>
> *At approximately 1830, the Area Supervisor contacted the Superintendent to advise him they were not going to get the material sealed. The supervisor believed there was 30 minutes of work remaining, involving four smooth drum rollers working the new material. All four rollers had lighting units installed on them, however no further lighting towers were established on the fill area. After consultation with the Area Project Manager, the Superintendent directed the Area Supervisor to continue working.*
>
> *No provisions were put in place for working at night, fatigue management, no environmental controls were implemented and notification to the community and stakeholder team was not made.*
>
> *Works ceased onsite at 1920.*

The investigation identified several failures, related to Health and Safety, community impacts and internal communication. The identified failures and reinforcement of the processes which should have been implemented were communicated to internal project personnel via a "Lessons Learnt" meeting, the Daily Project Bulletins and communications with the cartage contractors. A review of the Out of Hours request form was included in the Lessons Leant meeting. The MCDDJV "Schedule of Hazards, Risks & Mandatory Minimum Controls", which is used to identify hazards and controls prior to works commencing, was also updated to clearly identify work hours and specifically include the Out of Hours request form. The project has also scheduled deliveries of fill to arrive before 6 pm, to allow for any future delays.

NOTE: MRPV also records its inspection findings using its own tracking system. MRPV has provided the auditor its incident register, which contains a far greater number of incidents than those recorded by MCDDJV. Ideally, the list of incidents/non-conformances held by the two organisations should be the same. This issue of liaison between the two organisations is discussed in Section 8 below.

7.2 Reported Non-conformances

There was one non-conformance report (NCR) since the previous audit that was raised 20th May 2020. This involved a rotted tree in a No-Go-Zone that was blown over during high winds. The falling tree also caused significant damaged to four smaller trees. The contract arborist recommended that the fallen and damaged trees be removed to make the areas safe. At the time, MCCDJV viewed the issue as a natural occurrence and proceeded with removal of the fallen vegetation. As a consequence, MRPV was not informed and did not provide approval prior to removal, as required by the construction contract. This omission resulted in the NCR and the vegetation Environment Management Plan was subsequently amended to require MRPV to be consulted prior to any removal of fallen vegetation from a No-Go-Zone.

7.3 Discussion and Conclusions

Based on the above information, there was one significant incident that impacted on the surrounding community. The subsequent incident investigation and review process was comprehensive in identifying the system failures and the retraining and system changes appear appropriate to prevent reoccurrence.

Opportunity for Improvement

NIL

8 Management of Incident Reports, Non-Conformance Reports and Audit Findings

In discussions with MRPV and MCDDJV personnel, a request was made to identify methods to track and report on incidents, non-conformances and audit findings and better improve liaison between the two organisations. It should be noted that the liaison between MRPV and MCDDJV is technically beyond the IREA's audit scope, however, some comments and suggestions are provided at the request of the two parties.

Incidents:
In the auditor's opinion, it is always better to utilise existing processes, if suitable, rather than introduce additional processes. MCDDJV is currently recording incidents in CMO incident management software. Reportedly, the software allows incidents and investigation results to be recorded, corrective actions to be tracked as they are implemented and reports to be prepared. Therefore, the current process is functioning and satisfies the requirement to record, track and report on incidents. CMO is used across all McConnell Dowell projects. In recent meetings between MRPV and MCDDJV, there has been agreement that CMO is appropriate and should continue to be used.

As discussed in the previous section, there is a significant difference in the incidents recorded by MRPV and the incidents and non-conformances recorded by MCDDJV. Ideally, the two lists should be the same in order for both parties to agree on actions that need to be taken. A process should be developed whereby identified issues can be discussed and agreed upon and then entered into the registers held by both organisations. Issues which have been actioned should then be closed out once MCDDJV provides evidence the issue has been adequately actioned. As stated above, it is beyond the IREA's remit to audit and make recommendations concerning liaison between the two organisations, however, a consistent list of issues would facilitate the audit process in the future. It would likely aid both MCDDJV and MRPV if the auditor's audit scope could be broadened to include these areas, even for a one-off audit.

Non-conformances:
Non-conformances are recorded using "Team Binder", which is part of the McConnell Dowell certified quality system. Again, it allows the investigation results to be recorded,

corrective actions tracked and reports prepared. Therefore, it satisfies the recording, tracking and reporting requirements.

Audit Findings:

In contrast, there is no formal method to record, action and report on audit findings. Currently, the audit findings along with proposed actions and action status are entered into a spreadsheet maintained by the MCDDJV site environmental personnel. As stated, MCDDJV has a certified quality system, which includes the management of audit findings. MCDDJV should investigate using the quality system process to also record environmental audit findings and track corrective actions until they are implemented.

Opportunity for Improvement

The rerecording of environmental audit findings could be formalised and there should be consistency between MRPV's incident register and MCDDJV's incident and non-conformance registers.

Recommendations:

13. **MCDDJV should investigate if the quality system could be used to record audit findings and track proposed corrective actions until they are implemented.**

14. **MCDDJV and MRPV should formalise a process whereby issues identified by both parties can be reviewed and those requiring actioning entered into the incident/non-conformance records held by both organisations. Evidence should be provided by MCDDJV as issues are actioned, allowing the issues to be closed out in both organisations' records.**

15. **MCDDJV and MRPV should consider formally broadening IREA's audit scope to include the systems and processes used to record, action and track incidents, non-conformances and audit findings. This could include how issues are communicated between the two organisations and formally recorded in both organisation's systems.**

Site Inspection

Fauna/Flora Observations

Above: Silt curtains around the Waterways piling platform appeared effective in containing sediment.

Above: Waterbirds and swans were prolific in the Waterways. A number were seen perching on the silt curtains and on small islands immediately next to the work zone and appeared unconcerned with the construction activities occurring at the time.

Above: The fauna plans required a small number of significant trees to be retained on either side of the access road south of Centre Dandenong Road. However, the project has made efforts to retain all vegetation that was outside of the immediate works areas.

Actioning of Previous Audit Findings

Above: Compliant example of spill kits located next to generator at waterways compound
Below: Complaint example of labelled bins at waterways compound.

Above: Additional rumble grids installed at exit of Governor Rd compound to more effectively clean trucks exiting site.

Below: Truck inspection checkpoint at Governor Rd is now staffed and sign posted. Trucks need to stop and drivers inspect trucks for rocks caught between tyres before exiting the site.

Left: The sediment fence south of Zone 1, Gate 4 was extended, as required by the previous audit recommendation.

Areas for Investigation

Above: Contractor's storage area - Drums of a sealing compound stored on a bunded pallet south of the Waterways piling area. One side of the drums was over the edge of the spill tray, therefore leaks may not be captured. Also, the material was a flammable good and should be stored in a flammable cabinet.

Above: The western boundary of the construction zone south of Centre Dandenong Road does not have a silt fence. However, there is significant vegetation which has been retained along the boundary and in Old Dandenong drain itself. Stormwater monitoring data collected before and after this area, following heavy rain events, should be reviewed to determine if there is a need for sediment fencing. A small, shallow on-site drain also leads down to the Old Dandenong drain. The on-site drain has been blocked, however, it is unclear if the internal drain has sufficient capacity to contain run-off from the site during a severe storm event.

Opportunity for Improvement

The storage of flammable goods by contractors should be improved and the need for additional sediment controls along the western boundary of the project, south of Centre Dandenong Road, needs to be determined.

Recommendations:

16. **Contractors working on the project should be reminded that flammable goods should be stored in an appropriate and labelled flammable goods container or cabinet along with a dry powder type fire extinguisher. Contractors' storage areas should be inspected to ensure materials are appropriately stored.**

17. **The updated stormwater monitoring plan should include locations in Old Dandenong drain upstream and downstream of the construction area south of Centre Dandenong Road. The turbidity results following heavy rain events should be used to determine the need for additional sediment fencing along the western boundary of the project in this area.**

18. The shallow on-site drain leading to Old Dandenong drain south of Centre Dandenong Road should be inspected during and after rain events to ensure it has sufficient capacity to contain stormwater on the site. If it becomes evident that it may overflow during heavy rain events, then the bund blocking the exit to the drain should be raised to increase it's holding capacity, or other suitable measures implemented to prevent an uncontrolled overflow.

9 Summary of Recommendations

Recommendation Types:

Non-conformance (NC)

An instance, event or occurrence that has not-fulfilled a requirement that has been specified in the Strategy, CEMP, ECPs, EPRs, legislation, or approval conditions.

(Note 1: A non-conformance may be an individual non-conformance or a number of minor but related audit findings, which when considered in total are judged to constitute a non-conformance.)

Opportunity for Improvement (OI)

A deficiency in the implementation of the Strategy, CEMP, ECPs, or associated documentation judged to be a risk to the environment, or to environmental management, without constituting an overall failure in the area concerned.

Observation (O)

An audit finding which may relate to an incidental or isolated system discrepancy, which does not compromise the effectiveness of environmental management, or constitute an actual or potential environmental risk.

IREA does not require Observations to be formally closed out after they have been issued and therefore will not report these in subsequent audit reports. It is the responsibility of the MCCJV to consider these findings.

Recommendation Priorities:

A - High risk of system failure, legal non-compliance, an EPR requirement or high environmental risk. **Must be corrected as a matter of priority.**

B - A requirement specified in an internal Plan or procedure, is affecting system efficiency, may result in system failure, or is a moderate environmental risk. **Must be corrected.**

Recomm. No.	Type	Recommendation	Priority
1.	OI	All dust monitoring data for the previous month should be downloaded from the real time analysers at the beginning of each month.	B
2.	OI	Air-Met Scientific should be required to identify and rectify the cause of the data loss in the Area 1 real time dust monitor. The monthly data should be reviewed for on-going occurrences of data loss. If this issue continues for longer than 1 month, then Air-Met Scientific should be asked to provide a temporary unit and power supply until the existing unit can be repaired.	A
3.	OI	MCDDJV should review the water monitoring locations to ensure the monitoring is providing results that can be used to assess the project impacts. Each downstream monitoring location should have a corresponding upstream monitoring location.	A
4.	OI	Access to water monitoring location 6US should be provided to the project environmental personnel as soon as possible and the monitoring in this location reinstated.	A
5.	OI	Water monitoring records should log results using the same location names as those shown on the water monitoring location map. If the monitoring location needs to be moved due to a one-off event, or additional monitoring occur for some reason, then this should be clearly noted on the monitoring record spreadsheet.	A
6.	OI	Water monitoring results should be reviewed immediately after monitoring. Any elevated turbidity results should require an inspection of the site boundary potentially contributing to the elevated turbidity. Any obvious run-off locations, or locations where uncontained soil or fill material could be entering the drain, should be identified and rectified. Each event should also be logged as a non-conformance and the proposed actions tracked to completion.	OI
7.	OI	High noise activities such as piling should only occur during the permitted construction day time period wherever possible.	A
8.	OI	The noise monitoring data should be reviewed as soon as it is available. As a minimum, those noise measurements that exceeded the “Highly Noise Affected” target of 75 dB(A)	A

Recomm. No.	Type	Recommendation	Priority
		Leq 15min should be investigated to determine why they occurred and if the noise levels could be reduced, or activities changed to the less sensitive day time period.	
9.	OI	All noise measurements should be taken at the closest residence to the work activities. If one of the background noise monitoring locations (L1, L2, etc.) shown on the noise area map in Appendix E is close to the works, then the noise measurements should be taken at these locations to provide a direct comparison to the background levels measure pre-construction. A procedure should be developed detailing how to choose the noise monitoring location. The procedure should also include calibration requirements and the meter settings discussed in recommendation 5 of the March 2020 audit report. Personnel carrying out the noise monitoring should be instructed in the implementation of the procedure.	A
10.	OI	Personnel taking noise measurements should note down if any of the reversing beepers are not an approved low noise squawker type. They should also note any significant impact type noise (bangs, crashes, etc.) that could be an annoyance to neighbouring residents. If they do occur, these should be investigated to determine the reason for their occurrence and if they can be prevented.	B
11.	OI	All available noise background data should be used to produce contour maps of noise levels along the alignment. The day and evening background levels can then be adjusted by adding 10 dB(A). A number of background levels were measured on private properties very close to the residences. It may not be practical for MCDDJV personnel to access these properties and the closest measurement will be the resident's boundary. The adjustment to the background level in order to produce the target noise level should include an additional allowance if there is any difference in measurement locations i.e. background measured on-site near house cf. measuring off-site at the resident's boundary. A second set of contour maps should then be produced showing the noise target contours along the alignment for day, evening and night periods. The contours should then be used going forward to determine the target noise levels and the project site plans and procedures amended accordingly.	B
12.	OI	Vibration monitoring should be carried out in a closest residential area to the east of the Waterways piling	B

Recomm. No.	Type	Recommendation	Priority
		operations, while piling is actually occurring.	
13.	OI	MCDDJV should investigate if the quality system could be used to record audit findings and track proposed corrective actions until they are implemented.	B
14.	OI	MCDDJV and MRPV should formalise a process whereby issues identified by both parties can be reviewed and those requiring actioning entered into the incident/non-conformance records held by both organisations. Evidence should be provided by MCDDJV as issues are actioned, allowing the issues to be closed out in both organisations' records.	B
15.	O	MCDDJV and MRPV should consider formally broadening IREA's audit scope to include the systems and processes used to record, action and track incidents, non-conformances and audit findings. This could include how issues are communicated between the two organisations and formally recorded in both organisation's systems.	-
16.	OI	Contractors working on the project should be reminded that flammable goods should be stored in an appropriate and labelled flammable goods container or cabinet along with a dry powder type fire extinguisher. Contractors' storage areas should be inspected to ensure materials are appropriately stored.	A
17.	OI	The updated stormwater monitoring plan should include locations in Old Dandenong drain upstream and downstream of the construction area south of Centre Dandenong Road. The turbidity results following heavy rain events should be used to determine the need for additional sediment fencing along the western boundary of the project in this area.	A
18.	OI	The shallow on-site drain leading to Old Dandenong drain south of Centre Dandenong Road should be inspected during and after rain events to ensure it has sufficient capacity to contain stormwater on the site. If it becomes evident that it may overflow during heavy rain events, then the bund blocking the exit to the drain should be raised to increase it's holding capacity, or other suitable measures implemented to prevent an uncontrolled overflow.	A

10 Audit Conclusions

10.1 Environment Management Plans

A review of the flood management and fauna and flora controls did not identify any issues that required actioning.

The requirements of the flood management report prepared in 2019 and the design and construction of the site settling ponds and on site drains should be capable of collecting, storing and treating stormwater falling on the site during severe storm events and prevent flooding.

The requirements if the Fauna and Flora Management Plan have been and continue to be implemented. This has resulted in minimal impact on the local fauna and retention of local vegetation above that required by the original project design. Issues with incursions into No-Go-Zones have been addressed and resulted in minimal environmental impact. The removal of small areas of vegetation in No-Go-Zones is more than off-set by the retention of large additional areas of vegetation on the project site.

10.2 Environment Performance Requirements

The EPR requirements have been incorporated into the contractor's EMPs (this was confirmed in a pre-construction audit). Therefore, compliance with the EMPs ensures compliance with the related EPRs. Hence the conclusions in Section 10.1 immediately above are also applicable to the MCDDJV's compliance with the EPR requirements.

10.3 Site Works

The site inspection found the previous audit site inspection recommendations had all been implemented and the housekeeping had improved substantially. Two issues were identified that should not result in environmental impacts if the audit recommendations are implemented. Infrastructure to protect local fauna, flora, the aquatic environment and the local community has been put in place.

10.4 Overall Conclusion

The implementation of plans and controls appear appropriate and effective and management of the site field activities has improved since the last audit. Operational issues have been responded to and there has been minimal environmental impact. Some issues still exist with noise, dust and water monitoring that need to be addressed to adequately assess the impact of works on neighbouring residents and the aquatic environment. The discrepancy between the MRPV and MCDDJV incident registers needs to be resolved so issues are agreed to and can be addressed.

Appendix A – Audit Agenda

Audit Agenda

Site:	Mordialloc Freeway Project
For:	McConnell Dowell Decmil Joint Venture
Project Environmental Auditor:	Vic Natoli
VicRoads Auditor/Reviewer:	Ken Fraser
Company Representative:	Chris DiDomenico
Audit Date/s:	25th – 26th June 2020

Day 1

9:00 Opening meeting with company representatives to review audit process, availability of data and personnel and confirm audit agenda

9:30 Review actions taken to close previous audit findings.

Water monitoring results and compliance. (W3, W5)

Air Monitoring results and compliance (AQ2)

Noise monitoring results and compliance (NV2)

Soil monitoring results (where monitoring has occurred) and contaminated soil management (CL1, CL2, CL6)

Incident reporting since previous audit and response

Community complaints since previous audit and response (EM2, LV5, S1)

Assess implementation of Flora Fauna EMP (B3, B4, B5)

Assess implementation of Flood Management EMP (W4)

4:30 Day 1 Wrap up meeting

Any issues identified during the day will be reviewed and discussed.

5:00 End of Day 1

NOTE: Text in brackets refers to the relevant EPR. The various Plans have been confirmed as complying with the EPRs. Therefore, compliance with the Pans will ensure compliance with the EPR requirements.

Day 2

Site Inspection

9:00 An inspection will be carried out of the site in order to:

- Determine if the controls specified in the plans and site specific plans have been implemented, as they apply to the works to date.
- Identify any unsuitable work practices.
- Visually confirm monitoring and sampling locations.

12:00 Day 2 Wrap up meeting

Any issues identified during the day will be reviewed and discussed.

12:30 End of Day 2

NOTE: Day 2 may be extended if required in order to complete the tasks listed in the Audit Agenda.

Appendix B – Quarterly Audit Schedule

EPR	EPR Title	Quarterly Site Audit and Inspection						
Audit/Review Date		6/2020	9/2020	12/2020	3/2021	6/2021	9/2021	12/2021
EM1	Construction Environmental Management Plans	*	*	*	*	*	*	*
EM2	Environmental complaints management	*	*	*	*	*	*	*
EM3	Independent Reviewer and Environmental Auditor (IREA)							
AQ1	Air quality (operation)							
AQ2	Air quality (construction)	*	*	*	*	*	*	*
B1	Fauna habitat							
B2	Lighting design (operation)							
B3	Native vegetation and habitat	*	*	*	*	*	*	*
B4	Fauna (construction)	*	*	*	*	*	*	*
B5	Native vegetation (construction)	*	*	*	*	*	*	*
B6	Flora and Fauna Monitoring Management Plan (operation)							

CL1	Soil Management Plan	*	*	*	*	*	*	*
CL2	Acid Sulphate Soil Management Plan	*	*	*	*	*	*	*
CL3	Passive landfill gas capture and venting design							
CL4	Landfill Gas Management Plan (Construction)		*				*	
CL5	Landfill Gas Management Plan (Operation)							
CL6	PFAS Management Plan	*	*	*	*	*	*	*
CL7	Landfill material							
E1	Business Disruption Plan							
E2	Utility assets							
GG1	Greenhouse gas monitoring and reporting							
GG2	Emissions reduction							
H1	Cultural Heritage Management Plan	*	*	*	*	*	*	*
H2	Unidentified non-Aboriginal historical archaeological sites	*	*	*	*	*	*	*
H3	Non-Aboriginal heritage sites	*	*	*	*	*	*	*

LV1	Landscape and urban design							
LV2	Crime prevention through environmental design							
LV3	Reinstatement works							
LV4	Lighting (operation)							
LV5	Light spillage (construction)	*	*	*	*	*	*	*
LV6	Minimise large (amenity - non native) tree removal outside no-go zones	*	*	*	*	*	*	*
LV7	Landscape management strategy							
LV8	Independent urban design review panel							
NV1	Noise and vibration (design)							
NV2	Construction Noise and Vibration Management Plan	*	*	*	*	*	*	*
NV3	Traffic noise verification							
S1	Community and Stakeholder Engagement Plan	*	*	*	*	*	*	*
S2	Recreational facilities							
T1	Intersection and freeway design and performance							

T2	Transport Management Plan							
T3	Vehicle and pedestrian access							
T4	Traffic validation							
W1	Water body health (water quality operation)							
W2	Flood protection (operation)							
W3	Surface water management (construction)	*	*	*	*	*	*	*
W4	Flood protection (Flood Management Plan for temporary works) (construction)	*			*			
W5	Water Management and Monitoring Plan	*	*	*	*	*	*	*
W6	Surface water management (design and operation)							
W7	Water Asset Management Plan (Operation)							

NOTE:

- Greyed out cells are not applicable.
- An asterisk in the "Quarterly Site Audit and Inspection" columns does not mean every item in the referenced EPR will be reviewed. Refer to the Quarterly Site Audit and Inspection Topic Agenda below for additional details.
- Separate "Quarterly Site Audit and Inspection" and "IREA EPR Review" reports will be produced for each quarter.
- The IREA's review of EPR NV3 (Traffic Noise Verification) will occur post construction.

Quarterly Site Audit and Inspection Topic Agenda

Audit Date	Quarterly Site Audit and Inspection Topics
June 2020	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Flora Fauna EMP (B3, B4, B5) • Flood Management EMP (W4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
September 2020	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Soil contamination EMP (CL1, CL2, CL6) • Landfill Gas EMP (CL4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
December 2020	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit

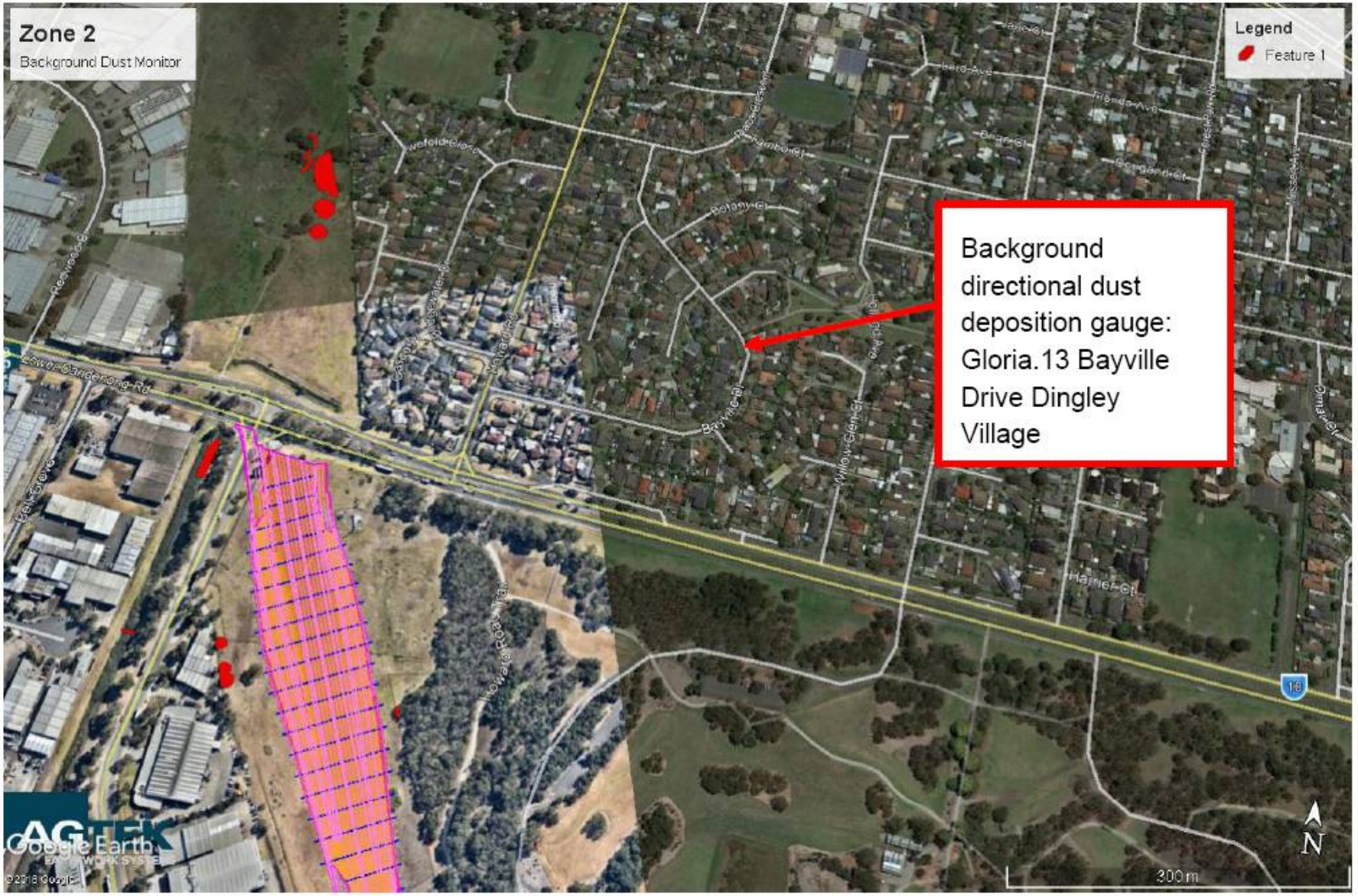
	• Community complaints and response since previous audit (EM2, LV5, S1) • Noise EMP (NV2) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
March 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Water EMP (W5) • Flood Management EMP (W4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
June 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Waste Management EMP • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
September 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit

	• Community complaints and response since previous audit (EM2, LV5, S1) • Landfill Gas EMP (CL4) • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)
December 2021	• Review actions taken to close previous audit findings. • Water monitoring results and compliance. (W3, W5) • Air Monitoring results and compliance (AQ2) • Noise monitoring results and compliance (NV2) • Soil Monitoring Results (where monitoring has occurred) (CL1, CL2, CL6) • Incident reporting and response since previous audit • Community complaints and response since previous audit (EM2, LV5, S1) • Waste Management EMP • Site Inspection (AQ2, B3, B4, B5, H1, H2, H3, LV6, W3)

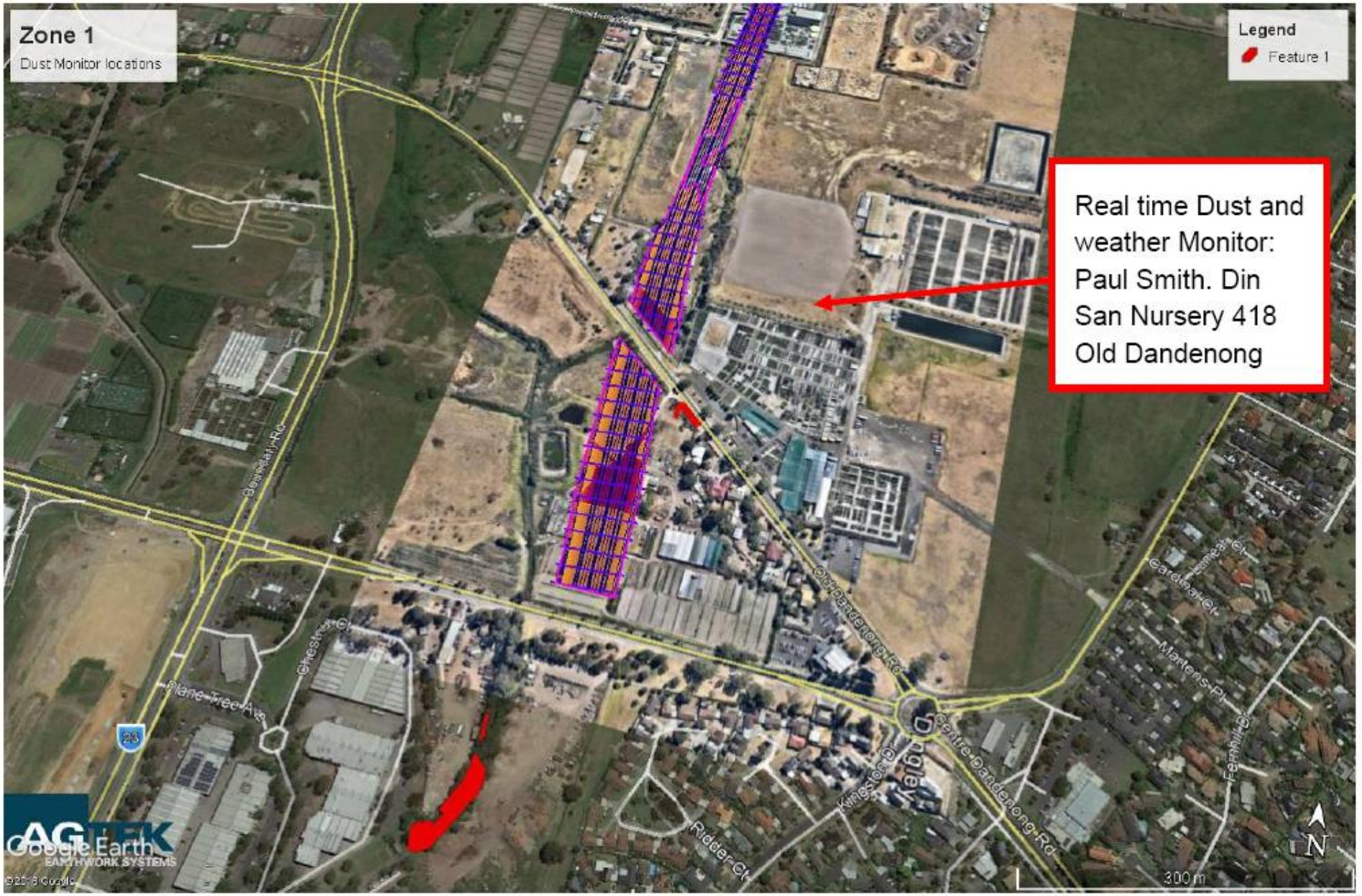
NOTE:

- References in brackets are the respective EPR numbers.

Appendix C – Dust Monitoring Locations



STATEWIDE
RIVER & STREAM MANAGEMENT PTY. LTD



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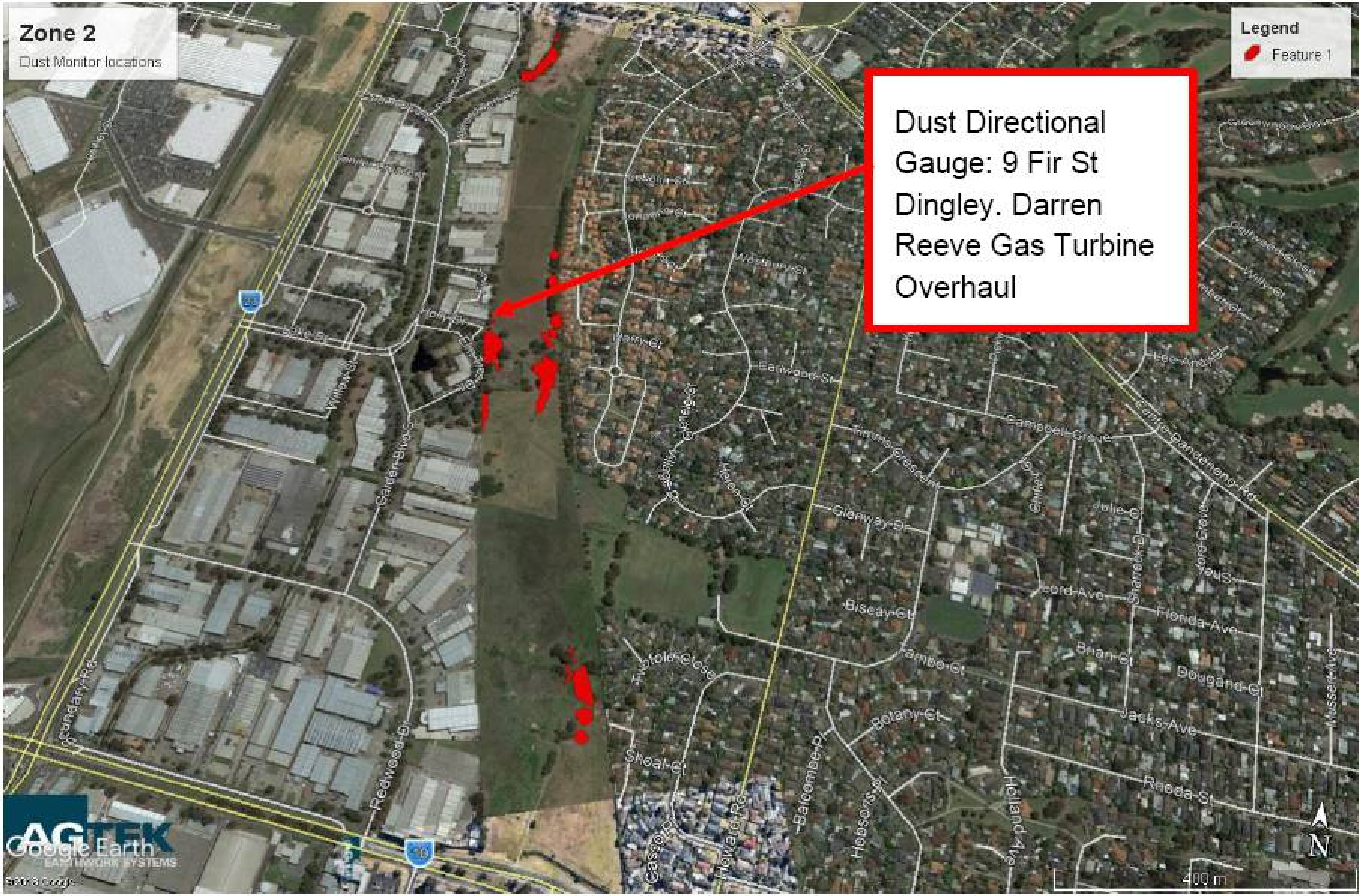

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RIVER & STREAM MANAGEMENT PTY. LTD

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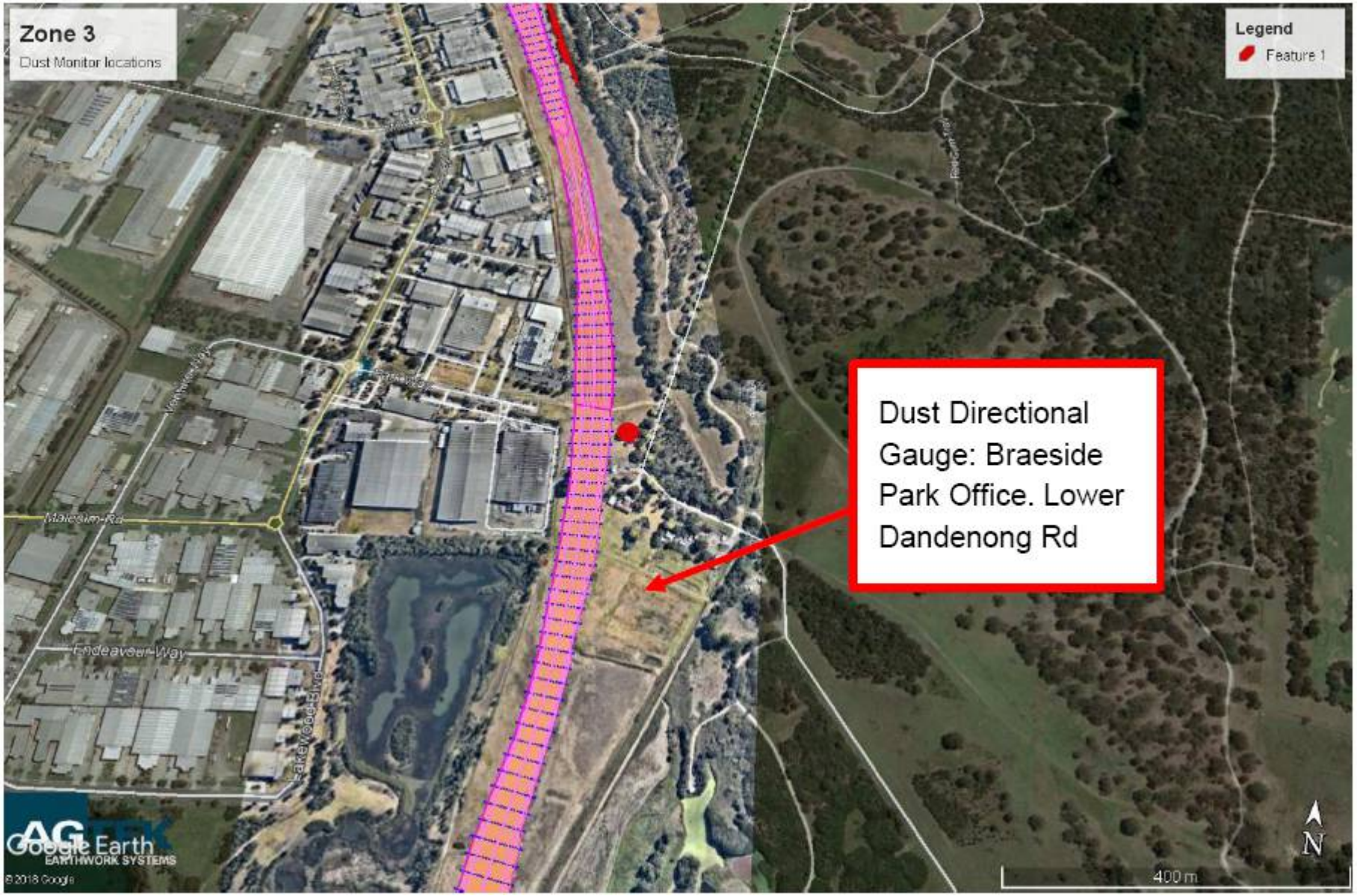
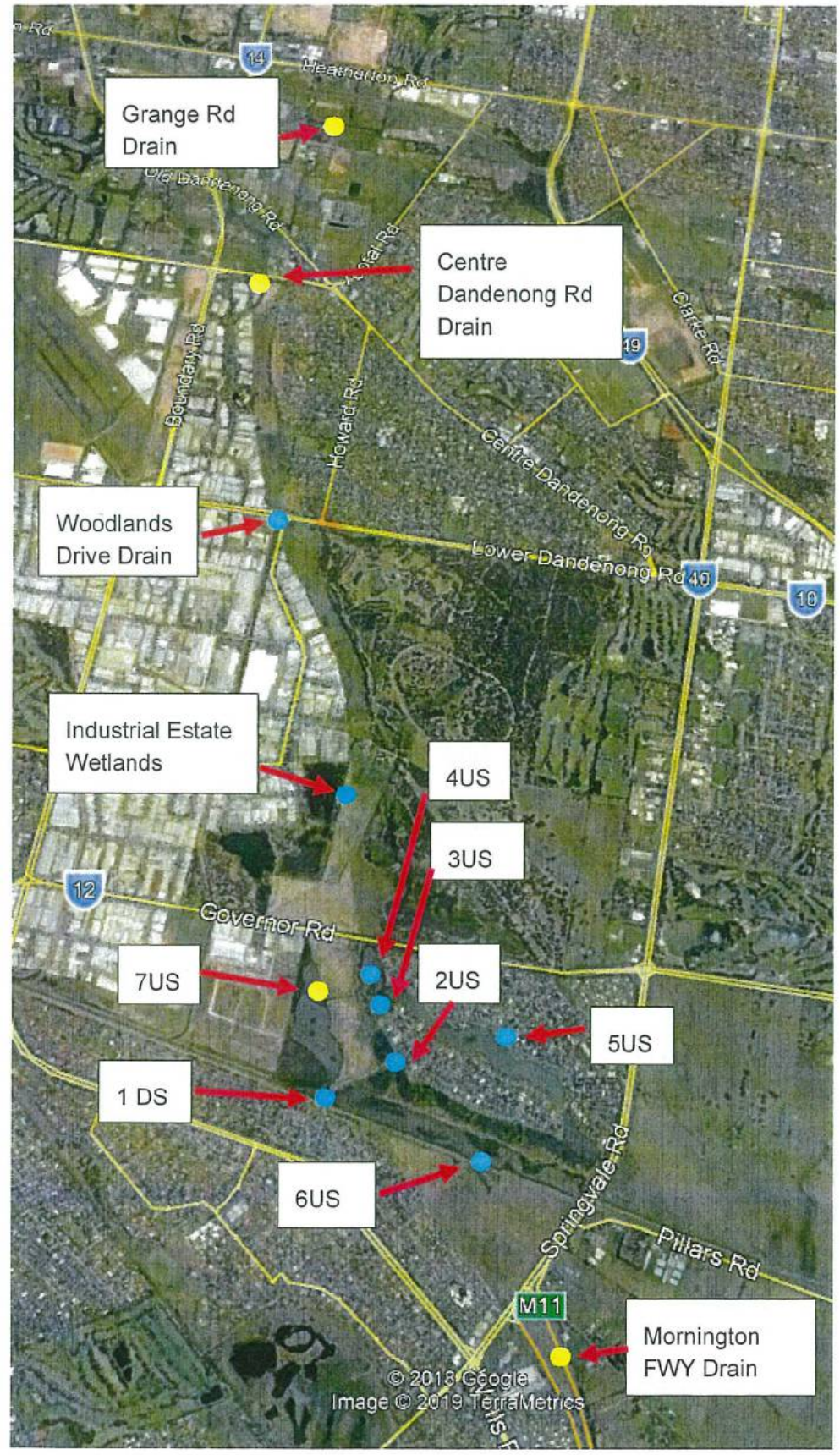
RIVER & STREAM MANAGEMENT PTY. LTD



Appendix D – Water Monitoring Locations



Appendix E – Noise Control Areas